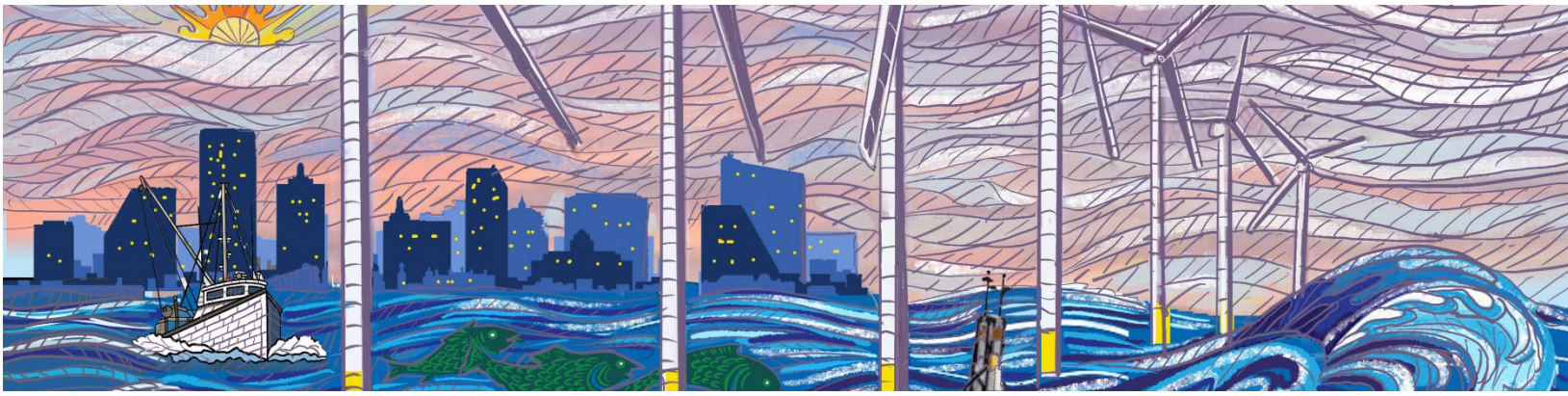

Appendix II-D1

Wetland and Stream Delineation Report - Cardiff and O&M Facility Study Areas

May 2024

Wetland and Stream Delineation Report

Atlantic Shores Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

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ACRONYM LIST

ACE	Atlantic City Electric
Atlantic Shores	Atlantic Shores Offshore Wind, LLC
CFR	Code of Federal Regulations
dbh	Diameter breast height
EDR	Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
EPA	Environmental Protection Agency
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FEMA	Federal Emergency Management Agency
1989 Interagency Manual	Federal Manual for Identifying and Delineating Jurisdictional Wetlands
HUC	Hydrologic Unit Codes
LOI	Letter of Interpretation
NLCD	National Land Cover Dataset
NWI	National Wetlands Inventory
NRCS	Natural Resources Conservation Service
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
OBL	Obligate
PEM	Palustrine emergent wetland
PFO	Palustrine forested wetland
POW	Palustrine Open Water
PSS	Palustrine scrub-shrub wetland
POI	Point of Interconnection
ROW	Right-of-Way
USACE	United States Army Corps of Engineers
USFWS	United States Fish & Wildlife Service
USGS	United States Geologic Service
UPL	Upland

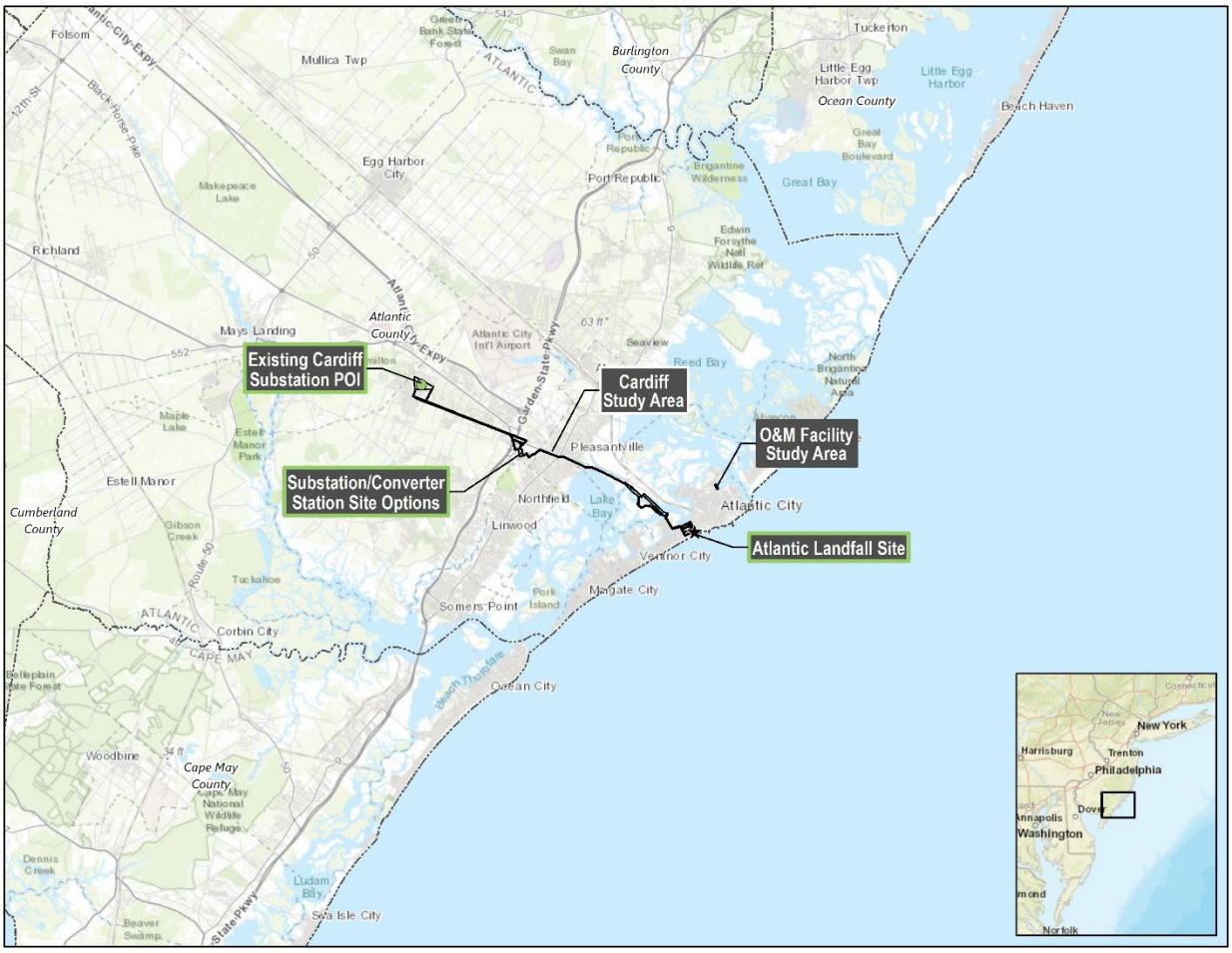
1.0 INTRODUCTION

Atlantic Shores Offshore Wind, LLC (Atlantic Shores) is a 50/50 joint venture between EDF-RE Offshore Development, LLC (a wholly owned subsidiary of EDF Renewables, Inc. [EDF Renewables]) and Shell New Energies US LLC (Shell). Atlantic Shores is developing a Construction and Operations Plan for submittal to the Bureau of Ocean Energy Management for two offshore wind energy generation projects within the southern portion of Lease Area OCS-A 0499 (the Lease Area) off the coast of New Jersey with onshore interconnections in two areas of New Jersey.

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR), was contracted by Atlantic Shores to conduct wetland and stream delineations associated with the onshore infrastructure necessary to support the Projects' interconnection to the existing Cardiff Substation located in Egg Harbor Township, Atlantic County, New Jersey. The wetland and stream delineation study area (herein referred to as the Cardiff Study Area) includes the proposed onshore interconnection route rights-of-way (ROWs) from the proposed Atlantic Landfall location in the City of Atlantic City, Atlantic County, New Jersey; the proposed onshore substation and/or converter station site options located in Egg Harbor Township, New Jersey; and the Cardiff point of interconnection (POI). In addition, this report also includes the results of wetland and stream evaluations associated with Atlantic Shores' proposed Operations and Maintenance (O&M) Facility site (referred to herein as the O&M Facility Study Area) also located in Atlantic City, New Jersey. Collectively the Cardiff and O&M Facility Study Areas are referred to as the Study Areas.

For both the Cardiff Study Area and O&M Facility site, this report identifies and discusses the evaluation of the three wetland parameters (i.e., hydrology, soils, and vegetation) involved in determining the location and extent of jurisdictional wetland area boundaries.

Exhibit 1: Cardiff Study Area and O&M Facility Study Area Locations (not drawn to scale)



1.1 Regulatory Framework

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" (Environmental Protection Agency, 40 Code of Federal Regulations [CFR] 239.3 and Army Corps of Engineers, 33 CFR 328.3).

Navigable waters of the United States "are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity" (Army Corps of Engineers, 33 CFR 320.4).

Freshwater wetlands and waterbodies are typically under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) subject to Section 404 of the Clean Water Act; however, the New Jersey Legislature in July 1987 passed the state's Freshwater Wetlands Protection Act which provided protection for inland and coastal wetlands. This act provided the framework for New Jersey to establish a comprehensive permitting program to regulate all activities in freshwater and tidal wetlands and wetland transition areas under N.J.A.C. 7:7 et. seq. As a result of this permitting program, a memorandum of understanding between the United States Environmental Protection Agency (EPA), United States Fish & Wildlife Service (USFWS), and the New Jersey Department of Environmental Protection (NJDEP) and a memorandum of agreement between the USACE and NJDEP has provided New Jersey delegated federal authority over non-tidal freshwater wetlands within the state. Navigable waters of the United States and other wetlands within 1,000 feet of the head of tide remain under the regulatory jurisdiction of the USACE subject to Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act but are also under NJDEP jurisdiction through the Freshwater Wetlands Protection Act.

In addition, coastal wetlands are regulated according to the Wetlands Act of 1970 which authorized NJDEP to regulated activities on coastal wetlands that have been delineated and mapped by the Department. Generally, these wetlands are also regulated by the USACE under Section 10 of the Rivers and Harbors Act.

Wetland transition areas established under N.J.A.C. 7:7-9.28 and N.J.A.C. 7:7A-3.3(d), varies depending on the resource value classification of the associated wetland or surface water based on surface water quality standards, special area protections and fish and wildlife requirements. The following are the resources classifications and their associated wetland transition areas:

- Ordinary Resource Value (0-foot transition area) wetlands are those that are smaller than 5,000 square feet, is considered a drainage ditch or swale, a detention facility created for stormwater purposes or existing in lawns, maintained landscaped areas and other disturbed locations.
- Intermediate Resource Value (50-foot transition area) wetlands are those wetlands that are not classified as either exceptional or ordinary resource value.
- Exceptional Resource Value (150-foot transition area in freshwater wetland systems and 300-foot in tidal wetland systems) wetlands are those that discharge into trout production waters or their tributaries or Category One waters and are a present or documented habitat for threatened & endangered species.[1]

Depending on project design and assessed impacts to the wetlands and waters identified, various NJDEP permits and/or Section 10/404 permits from the USACE may be required.

[1] According to N.J.A.C. 7:9B-1.4 "Category one waters" means those waters designated in the tables in N.J.A.C. 7:9B-1.15(c) through (i), for purposes of implementing the antidegradation policies set forth at N.J.A.C. 7:9B1.5(d), for protection from measurable changes in water quality based on exceptional ecological significance, exceptional recreational significance, exceptional water supply significance or exceptional fisheries resource(s) to protect their aesthetic value (color, clarity, scenic setting) and ecological integrity (habitat, water quality and biological functions).

1.2 Purpose

This report describes the results of the wetland and stream delineations conducted which includes identification of the federal and/or state jurisdictional wetland and water resources within the Cardiff Study Area and O&M Facility Study Area, discussion of the evaluation of the three wetland parameters (i.e., hydrology, soils, and vegetation), and the process of evaluating the three parameters to determine the location and extent of the federal and/or state jurisdictional boundaries of wetlands and waters. This report also includes a preliminary evaluation of the resource value of each wetland according to NJDEP regulations for the purpose of supporting required permit applications.

2.0 GENERAL SITE CHARACTERISTICS

Publicly available information used in determining the presence and approximate boundaries of wetlands and waters of the United States were obtained and reviewed prior to commencing field investigations and are summarized in the sub-sections 2.1 through 2.5.

Materials and data supporting this investigation have been derived from a number of publicly available sources including United States Geological Survey (USGS) topographic mapping (i.e., Pleasantville, Oceanville, and Atlantic City NJ 7.5 minute quadrangles), USFWS National Wetlands Inventory (NWI) mapping, NJDEP Wetlands mapping, the Natural Resources Conservation Service (NRCS) Web Soil Survey (Soil Survey Staff, 2020), the NRCS List of Hydric Soils of the State of New Jersey (NRCS, 2020), the National Land Cover Dataset (NLCD) land cover and vegetation classes (Yang et al., 2018), and recent aerial photography.

Vascular plant names follow nomenclature found in the Integrated Taxonomic Information System (ITIS, 2020), and wetland indicator status for plant species was determined by reference to the National Wetland Plant List (Lichvar et al., 2016). Jurisdictional areas were characterized according to the wetlands and deepwater habitats classification system used in NWI mapping (Cowardin et al., 1979).

2.1 Physiography and Soils

The Cardiff and O&M Facility Study Areas are located within the Outer Coastal Plain physiographic province of New Jersey. The local geography includes materials that are marine deposited sedimentary sands, gravels and clays overlain with later deposits of the interglacial Pleistocene time. 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).

Hydric soil is defined as a "*…soil that is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part*," (USDA-SCS 1987) and typically is indicative of a wetland. Extended periods of inundation/saturation cause chemical reactions in the soil that alters the physical characteristics and soil color within the matrix. These properties are used to identify hydric soils and can often be observed during field investigations. Hydric mineral soils generally have a gleyed matrix, low

chroma matrix and/or brightly colored redox concentrations (mottles). A representative gleyed soil will have blue, green, or gray coloration directly below the A-horizon, reflecting consistent long-term saturation. A soil containing redox concentrations or mottles with a low chroma matrix is usually a strong indicator of a fluctuating water table. Although soil series may be generally classified as hydric or potentially hydric in the online databases, this is for general use and does not supersede specific conditions documented in the field. Within the Cardiff Study Area, elevations range from below sea level between Atlantic City and the mainland to approximately 65 feet above sea level approaching Cardiff Substation. The USGS map presented in Figure 1 shows the range of mapped elevations within the Cardiff Study Area, the O&M Facility Study Area, and the surrounding areas.

The Web Soil Survey of Atlantic County (Soil Survey Staff, 2020) indicates the occurrence of 19 soil series within the Cardiff Study Area and three soil series within the O&M Facility Study Area (see Figure 2). Downer loamy sand (DocBO) and Psammaquents (PstAt) are the predominant series occurring within the Cardiff Study Area and the O&M Facility Study Area. Other dominant soil series mapped on-site include Galloway loamy sand (GamB) and Psamments (PssA). Soils range from very poorly drained to excessively drained, and soil textures range from sand to muck. Table 1 lists the soil series found within the Study Areas and their characteristics including slope, drainage class and hydric status. "Hydric" and "Potentially Hydric" designations are based on information obtained on the NRCS Web Soil Survey (Soil Survey Staff, 2020) and the National Hydric Soils List (Soil Survey Staff, 2020).

Table 1. Mapped Soil Units within the Study Areas

Mapping Unit Symbol	Series	Slope (%)	Drainage[1]	Hydric Percentage[2]	Hydric Rating[2]
AtsAO	Atsion sand, Northern Tidewater Area	0-2	PD	95	Hydric
AugaA	Aura sandy loam, Northern Tidewater Area	0-2	WD	0	Not Hydric
AugaB	Aura sandy loam, Northern Tidewater Area	2-5	WD	0	Not Hydric
DocBO	Downer loamy sand, Northern Tidewater Area	0-5	WD	5	Partially Hydric
FobB	Fort Mott sand	0-5	WD	3	Partially Hydric
GamB	Galloway loamy sand	0-5	SPD	10	Partially Hydric
HbmB	Hammonton loamy sand	0-5	MWD	15	Partially Hydric
HoruBr	Hooksan-Urban land complex, rarely flooded	0-10	ED	15	Partially Hydric
LakB	Lakehurst sand	0-5	MWD	10	Partially Hydric

Mapping Unit Symbol	Series	Slope (%)	Drainage[1]	Hydric Percentage[2]	Hydric Rating[2]
MakAt	Manahawkin muck	0-2	VPD	100	Hydric
MumA	Mullica sandy loam	0-2	VPD	100	Hydric
PHG	Pits, sand and gravel	N/A	WD	0	Not Hydric
PssA	Psamments	0-2	WD	15	Partially Hydric
PstAt*	Psammaquents, sulfidic substratum	0-2	VPD	100	Hydric
SacAO	Sassafras sandy loam, Northern Tidewater Area	0-2	WD	0	Not Hydric
SacBO	Sassafras sandy loam, Northern Tidewater Area	2-5	WD	0	Not Hydric
TrkAv*	Transquaking mucky peat, very frequently flooded	0-1	VPD	100	Hydric
WATERS*	Water, saline	NA	NA	Water	Water
WoeAO	Woodstown sandy loam, Northern Tidewater Area	0-2	MWD	6	Partially Hydric

[1] Soil drainage is represented by the following abbreviation: "ED" = excessively drained, "WD" = well drained, "MWD" = moderately well drained, "PD" = poorly drained, and "VPD" = very poorly drained. [2] Hydric = 50-100, Partially Hydric = 1-49, Not Hydric = 0, Water = Water

* Indicates soil present within the Cardiff Study Area and O&M Facility Study Area

2.2 Hydrology

The Cardiff and O&M Facility Study Areas are located in the NJDEP Great Egg Harbor Watershed Management Area (WMA) as shown in Figure 3. The Cardiff Study Area spans across the following Hydrologic Unit Codes (HUC) that are within the WMA (Figure 3).

- HUC 8:
    - Great Egg Harbor (02040302)
- HUC 10:
    - Great Egg Harbor Bay-Frontal Atlantic Ocean (0204030204)
    - Great Egg Harbor Bay-Atlantic Ocean (0204030205)
- HUC 12:
    - Absecon Bay (020403020408)
    - Great Egg Harbor Bay-Great Egg Harbor Inlet (020403020500)
    - Great Egg Harbor Inlet-Atlantic Ocean (020403020500)
    - Patcong Creek (020403020408).

The O&M Facility Study Area spans the above HUC 8 and HUC 10 units as well as the HUC 12 Absecon Bay (020403020408) unit.

Most of the surface hydrology within the Cardiff and O&M Facility Study Areas is generated by precipitation and surface water run-off from adjacent land. Due to the sandy texture of the soil and portions of the Study Areas at or below sea level, there are areas where surface hydrology is influenced by groundwater discharge. In addition, total annual precipitation (from 2000 to 2022) averages 47.78 inches in the Atlantic City Region (NOAA, 2022). The on-site wetland delineation for the portions of the Study Areas that were accessible occurred during and after the growing season between June 22 and 24, 2020; December 9, 2020; September 14, 2021; June 20 and 21, 2022; February 8, 9 and 15, 2023, and September 1, 2023. Precipitation for the month of May 2020 was low (1.62 inches) compared to the monthly average of 3.39 inches in the Atlantic City Area. Precipitation for November 2020 was above average (5.60 inches) compared to the monthly average of 3.69 inches. Precipitation for August 2021 was above average (6.28) compared to the monthly average of 4.15 inches in the Atlantic City Area. Precipitation for June 2022 was below average (2.59 inches) compared to the monthly average of 3.39 inches. Precipitation for January 2023 was slightly above average (3.74 inches) compared to the monthly average of 3.38 inches. Precipitation for August 2023 was below average (2.20 inches) compared to the monthly average of 4.08 inches (NOAA, 2023).

2.3 Federal- and State-Mapped Wetlands

New Jersey State-mapped wetlands indicate that there are 47 mapped wetlands totaling approximately 25.4 acres in the Cardiff Study Area, and no mapped wetlands are within the O&M Facility Study Area (Figure 4). The mapped wetlands in the Cardiff Study Area include saline marsh (10.2 acres low marsh, 1.0 acre high marsh), herbaceous wetlands (3.4 acres), phragmites dominated interior wetlands (4.2 acres), coniferous wooded wetlands (2.7 acres), deciduous scrub/shrub wetlands (0.2 acre), vegetated dune communities (0.4 acre), managed wetland in built-up maintained rec area (0.7 acre), coniferous scrub/shrub wetlands (0.6 acre), modified disturbed wetlands (0.3 acre), mixed scrub/shrub wetlands (0.02 acre coniferous dominant, 0.03 acre deciduous dominant), mixed wooded wetlands (0.8 acre deciduous dominant, 0.4 acre coniferous dominant), phragmites dominate urban areas (<0.01 acre), phragmites dominate coastal wetlands (<0.01 acre), and deciduous wooded wetlands (0.2 acre).

NWI mapping indicates the presence of 17 wetland communities and 3 riverine resources totaling approximately 86.6 acres within the Cardiff Study Area and two estuarine and marine deepwater resource totaling approximately 01.7 acre within the O&M Facility Study Area (Figure 4). Estuarine and marine deepwater communities are the dominant community type mapped on site, totaling approximately 65.3 acres. Other NWI-mapped communities within the Study Areas include estuarine and marine wetland (16.0 acres), freshwater emergent wetland (1.3 acres), freshwater forested/shrub wetlands (5.2 acres), freshwater pond (0.01 acre), and riverine resources (0.5 acre).

New Jersey mapping identifies three perennial waterways and their tributaries as well as an estuary of several thoroughfares within the Cardiff Study Area. The perennial waterways include Mill Branch, Cedar Branch, Maple Run, and their associated tributaries. The estuary consists of the Beach and Great Thoroughfares that connects to the Inside Thoroughfare and ultimately the Atlantic Ocean.

In addition, mapping indicates one perennial waterbody, the Delta Basin, a small harbor within the O&M Facility Study Area. The Delta Basin flows into Clam Creek, which continues into the Absecon Inlet where it makes a direct connection to the Atlantic Ocean.

2.4 Mapped Floodplains

According to the Federal Emergency Management Agency (FEMA) map service, the portions of the Cardiff Study Area on the barrier island and along Route 40 across the estuary are within the 1% annual chance flood zone. The remainder of the Cardiff Study Area on the mainland is outside of any mapped floodplains. Figure 5 shows the location of the mapped floodplain areas in relation to the Cardiff Study Area.

2.5 Vegetation

Land cover and vegetation occurring within the Study Areas were evaluated using data from 2015 Land Use/Land Cover of New Jersey (NJDEP, 2015), and further verified during the on-site field investigations. The Cardiff Study Area encompasses approximately 566 acres and consists primarily of commercial and industrial development, transportation (highways and railroads), utilities, tidal rivers/inland bays/tidal waters, mixed and deciduous forest, and residential development (Table 2). The O&M Facility Study Area totals approximately 7 acres and consists primarily of an urban vacant lot landward of the existing bulkhead (Table 2A). The location and extent of various land use and land cover locations is provided in Figure 6.

Table 2. Vegetation/Land Cover Within the Cardiff Study Area

Land Cover Class	Acres	Percent Cover (%)
Commercial/Services	80.8	14.3
Transportation/Communication/Utilities	67.4	11.9
Tidal Rivers, Inland Bays, And Other Tidal Waters	65.8	11.6
Major Roadway	58.2	10.3
Mixed Forest (>50% Coniferous With >50% Crown Closure)	48.4	8.6
Deciduous Forest (>50% Crown Closure)	36.9	6.5
Residential, High Density or Multiple Dwelling	27.2	4.8
Other Urban or Built-Up Land	26.1	4.6
Recreational Land	22.6	4.0
Upland Rights Of Way Undeveloped	20.8	3.7
Residential, Single Unit, Medium Density	14.6	2.6
Mixed Forest (>50% Deciduous With >50% Crown Closure)	12.7	2.3
Saline Marsh (Low Marsh)	10.2	1.8
Mixed Deciduous/Coniferous Brush/Shrubland	8.9	1.6
Residential, Rural, Single Unit	7.6	1.3
Residential, Single Unit, Low Density	6.5	1.1
Industrial	5.4	1.0
Athletic Fields (Schools)	4.3	0.8
Phragmites Dominate Interior Wetlands	4.1	0.7

Land Cover Class	Acres	Percent Cover (%)
Stormwater Basin	4.1	0.7
Coniferous Forest (>50% Crown Closure)	3.7	0.7
Herbaceous Wetlands	3.5	0.6
Transitional Areas	3.2	0.6
Stadium, Theaters, Cultural Centers and Zoos	3.0	0.5
Coniferous Wooded Wetlands	2.7	0.5
Mixed Forest (>50% Deciduous With 10-50% Crown Closure)	2.0	0.4
Airport Facilities	1.9	0.3
Railroads	1.8	0.3
Cemetery	1.5	0.3
Coniferous Brush/Shrubland	1.3	0.2
Old Field (<25% Brush Covered)	1.3	0.2
Saline Marsh (High Marsh)	1.1	0.2
Deciduous Forest (10-50% Crown Closure)	0.9	0.2
Mixed Wooded Wetlands (Deciduous Dom.)	0.8	0.1
Mixed Urban or Built-Up Land	0.7	0.1
Coniferous Scrub/Shrub Wetlands	0.7	0.1
Managed Wetland in Built-Up Maintained Rec Area	0.7	0.1
Disturbed Wetlands (Modified)	0.5	0.1
Deciduous Brush/Shrubland	0.5	0.1
Orchard/Vineyard/Nurseries/Horticultural Areas	0.5	0.1
Mixed Wooded Wetlands (Coniferous Dom.)	0.4	0.1
Vegetated Dune Communities	0.4	0.1
Coniferous Forest (10-50% Crown Closure)	0.2	0.04
Artificial Lakes	0.2	0.04
Deciduous Wooded Wetlands	0.2	0.03
Mixed Scrub/Shrub Wetlands (Coniferous Dom.)	0.03	0.006
Bridge Over Water	0.03	0.005
Mixed Scrub/Shrub Wetlands (Coniferous Dom.)	0.02	0.004
Phragmites Dominate Coastal Wetlands	0.004	0.0006
Beaches	0.0003	<0.0001
Total	566.2	100

Source: Land Use/Land Cover of New Jersey 2015 (NJDEP, 2015).

Table 2A. Vegetation/Land Cover Within the O&M Facility Study Area

Land Cover Class	Acres	Percent Cover (%)
Recreational Land	3.6	52.0
Tidal Rivers, Inland Bays, and Other Tidal Waters	1.7	24.5
Other Urban of Built-Up Land	1.1	15.2
Residential, High Density or Multiple Dwelling	0.6	8.3
Total	6.9	100

Source: Land Use/Land Cover of New Jersey 2015 (NJDEP, 2015).

3.0 FIELD INVESTIGATIONS

An initial desktop analysis using the data sources described in Section 2.0 was conducted by EDR prior to performing on-site wetland delineations to identify areas likely to contain wetland and stream resources within the Cardiff and O&M Facility Study Areas. This desktop analysis guided the field wetland delineation of the Cardiff Study Area conducted by EDR environmental scientists between June 22 and June 24, 2020, December 18, 2020, September 14, 2021, June 20 and 21, 2022, February 8, 9 and 15, 2023, and September 1, 2023

3.1 Methodology

The identification of wetland boundaries was based on the methodology described in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989 Interagency Manual) (Federal Interagency Committee for Wetland Delineation, 1989).

Wetland boundaries were defined in the field and mapped using a GPS unit with reported sub-meter accuracy. Data were collected from sample plots in representative wetland cover types and recorded on Routine Onsite Wetland Determination forms (Appendix B). The data collected at each delineated wetland included dominant vegetation, hydrology indicators, and soil characteristics.

According to the 1989 Interagency Manual, an area has wetland hydrology when saturated to the surface or inundated at some point in time during an average rainfall year, defined by the following criteria:

1) Saturation to the surface normally occurs when soils in the following natural drainage classes meet the following conditions:
    a. In somewhat poorly drained mineral soils, the water table is less than 0.5 feet from the surface for usually one week or more during the growing season.
    b. In low permeability (greater than 0.6 inches/hour), poorly drained or very poorly drained mineral soils, the water table is less than 1.5 feet from the surface for usually one week or more during the growing season.
    c. In more permeable, poorly drained or very poorly drained mineral soils, the water table is less than 1.0 foot from the surface for usually one week or more during the growing season.
    d. In poorly drained or very poorly drained organic soils, the water table is usually at a depth where saturation to the surface occurs more than rarely.
2) An area is inundated at some time if ponded or frequently flooded with surface water for one week or more during the growing season.

The manual lists field indicators of wetland hydrology including, but not limited to, visual observation of inundation, visual observation of soil saturation, oxidized channels (rhizospheres) associated with living roots and rhizomes, water marks, drift lines, water-borne sediment deposits, water-stained leaves, surface scoured areas, wetland drainage patterns, morphological plant adaptations, and hydric soil characteristics.

The 1989 Interagency Manual defines hydrophytic vegetation as macrophytic plant life growing in water, soil or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. According to the manual an area has hydrophytic vegetation when, under normal circumstances, more than 50% of the composition of the dominant species from all strata are assigned wetland indicators of obligate wetland, facultative wetland, and/or facultative; or a frequency analysis of all species within the community yields a prevalence index value of less than 3.0 when hydric soils and wetland hydrology are also present. Assessment of vegetation focused on the identification of plant species in four strata: trees (greater than 3 inches diameter at breast height [dbh]), saplings/shrubs (less than 3.0 inches dbh and greater than 3.2 feet tall), herbs (less than 3.2 feet tall), and woody vines. Dominance was determined by visually estimating those species having the greatest absolute percent cover within each stratum. Wetland indicator status for dominant plant species was determined by reference to the National Wetland Plant List (Lichvar et al., 2016). In addition, the 1989 Interagency Manual considers plants that have developed structural or morphological adaptations to inundation as indicators of hydric vegetation.

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (Federal Interagency Committee for Wetland Delineation, 1989). Hydric soil criteria are as follows:

1) All Histosols except Folists
2) Soils in aquatic suborders, aquatic sub-groups, Albolls suborder, Salorthids great group, or Pell great groups of Vertisols that are:
    a. somewhat poorly drained and have water table less than 0.5 feet from the surface for a significant period (usually a week or more) during the growing season, or
    b. poorly drained or very poorly drained and have either:
        i. water table at less than 1.0 foot from the surface for a significant period during the growing season if permeability is equal to or greater than 6.0 inches/hour in all layers within 20 inches
        ii. water table at less than 1.5 feet from the surface for a significant period during the growing season if permeability is less than 6.0 inches/hour in any layer within 20 inches.
3) Soils that are ponded for long duration (seven days to one month) or very long duration (a single event that is greater than one month) during the growing season
4) Soils that are frequently flooded (50% chance of flooding in a given year) for long duration or very long duration during the growing season.

Hydric soil conditions were determined in the field through observation of soils composition, color, and morphology. Soils data were collected by using a Dutch auger and tiling spade to examine the soil profile. Soil colors were determined using Munsell Soil Charts (Munsell Color, 2009). Information concerning soil series, color, texture, and matrix and mottle color was recorded for each delineated wetland and used to determine whether the soils displayed hydric characteristics.

Streams were identified based on the presence of observable bed and bank, flow regime, catchment area, and presence of ordinary high-water line characteristics, including a "clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris" (CFR, 1986). Stream boundaries were defined and mapped in the field using the same method as described above for wetlands. Stream flow regime (i.e., perennial, intermittent, or ephemeral) was determined through evaluation of hydrologic, geomorphic, and biological characteristics (NC DWQ, 2010). Data regarding stream gradient (gentle, moderate, or steep), stream bank and channel width, water depth, stream bed substrate, in-stream cover, and biological indicators were collected and recorded on stream inventory forms (Appendix B).

All wetlands and streams identified within the Cardiff Study Area were classified based on the Cowardin et al. (1979) classification system.

Representative photographs were taken of wetlands and streams delineated within the Study Areas. Photographs of delineated wetland and stream communities are included in Appendix C.

4.0 RESULTS

EDR field delineated 27 wetlands and 8 streams during field work within the Cardiff and O&M Facility Study Areas, as well as an additional one stream through desktop evaluation within the O&M Facility Study Areas as shown in the Wetland and Stream Delineation Plan in Appendix D. The data collected at each delineated wetland and stream, including presumed jurisdiction and NJDEP resource value classification are summarized in Table 3 and a detailed description of each resource is in Section 4.1. In accordance with the Cowardin et al. (1979) classification system, the waters delineated and/or identified within the Study Areas consist of the following community types: estuarine emergent (EEM), palustrine open water (POW), palustrine emergent (PEM), and palustrine forested (PFO). One watercourse located along the shore of the proposed O&M Facility on the Clam Creek portion of Absecon Inlet has been delineated via desktop aerial imagery and has not been field verified. This area, which includes open water within the active navigation channel, was desktop evaluated due to lack of access for safety, security, or property owner concerns within the O&M Facility Study Area. This feature has been noted in Table 3.

Table 3. Delineated Wetlands and Streams

Delineation ID[1]	Latitude of Centroid	Longitude of Centroid	Wetland Acreage Within Cardiff Study Area by Type[2]					Stream Type[3]	Linear Feet of Stream Within Study Areas	Resource Value Classification	Anticipated Federal Jurisdiction[4]	Anticipated State Jurisdiction[5]
			POW	EEM	PEM	PFO	Total					
WL1A	39.365315	-74.467726	--	1.1	--	--	1.1	--	--	Exceptional	Yes	Yes
WL1	39.36598	-74.4718	--	--	0.4	--	0.4			Exceptional	No	Yes
WL2	39.383038	-74.499678	--	1.0	--	--	1.0	--	--	Exceptional	Yes	Yes
WL3	39.404461	-74.566856	--	--	0.1	--	0.1	--	--	Intermediate	Yes	Yes
WL4	39.412709	-74.593835	--	--	0.3	--	0.3	--	--	Exceptional	Yes	Yes
WL5	39.413681	-74.597032	--	--	0.15	0.01	0.16	--	--	Ordinary	Yes	Yes
WL6	39.418985	-74.614486	--	--	--	0.2	0.2	--	--	Ordinary	Yes	Yes
W001	39.3924	-74.5558	--	--	0.18	--	0.18	--	--	Ordinary	No	No
W001A	39.39246	-74.5566	--	--	0.04	--	0.04	--	--	Ordinary	No	No
W002	39.39299	-74.5572	--	--	0.1	--	0.1	--	--	Ordinary	No	No
W003	39.39275	-74.5491	--	--	0.2	--	0.2	--	--	Intermediate	No	No
W004	39.38363	-74.5033	--	0.06	--	--	0.06	--	--	Intermediate	Yes	Yes
W005	39.38158	-74.4981	0.09	0.03	--	--	0.1	--	--	Exceptional	Yes	Yes
W005A	39.38091	-74.4965	--	0.003	--	--	0.003	--	--	Exceptional	Yes	Yes
W005B	39.38131	-74.4965	--	0.6	--	--	0.6	--	--	Exceptional	Yes	Yes
W006	39.37903	-74.4918	--	0.02	--	--	0.02	--	--	Intermediate	Yes	Yes
W007	39.37070	-74.4796	--	2.9	--	--	2.9	--	--	Exceptional	Yes	Yes
26-W001	39.36827	-74.4723	--	0.4	--	--	0.4	--	--	Exceptional	Yes	Yes
26-W002	39.37171	-74.4776	--	0.6	--	--	0.6	--	--	Exceptional	Yes	Yes
26-W005	39.40396	-74.5669	--	--	0.03	--	0.03	--	--	Exceptional	Yes	Yes
26-W006	39.41302	-74.596	--	--	--	0.04	0.04	--	--	Exceptional	Yes	Yes
26-W007	39.37396	-74.482	--	--	1.3	--	1.3	--	--	Exceptional	Yes	Yes
26-W007A	39.3738	-74.482	--	6.0	--	--	6.0	--	--	Exceptional	Yes	Yes
26-W008[+]	39.376119	-74.428896	--	0.08	--	--	0.08[+]	--	--	Exceptional	Yes	Yes

Delineation ID[1]	Latitude of Centroid	Longitude of Centroid	Wetland Acreage Within Cardiff Study Area by Type[2]					Stream Type[3]	Linear Feet of Stream Within Study Areas	Resource Value Classification	Anticipated Federal Jurisdiction[4]	Anticipated State Jurisdiction[5]
			POW	EEM	PEM	PFO	Total					
99-W23	39.42456	-74.625126	--	--	0.02	--	0.02	--	--	Ordinary	No	Yes
99-W24	39.424812	-74.626958	--	--	0.01	--	0.01	--	--	Ordinary	No	Yes
99-W25	39.424948	-74.624853	--	--	0.006	--	0.006	--	--	Ordinary	No	Yes
26-ST002	39.413079	-74.596703	--	--	--	--	--	R3	51	--	No	Yes
26-ST010	39.37588	-74.4852	--	--	--	--	--	R3	42	--	No	Yes
26-ST003	39.41756	-74.61136	--	--	--	--	--	R6	46	--	No	Yes
S001	39.365854	-74.468576	--	--	--	--	--	R1	9,790	--	Yes	Yes
WC3	39.37638	-74.4844	--	--	--	--	--	R1	62	--	Yes	Yes
WC4	39.38358	-74.501	--	--	--	--	--	R1	153	--	Yes	Yes
WC5	39.41795	-74.6112	--	--	--	--	--	R6	28	--	No	Yes
WC6	39.41898	-74.6145	--	--	--	--	--	R6	25	--	No	Yes
WC9*+	39.37563	-74.4284	--	--	--	--	--	R1	164+	--	Yes	Yes
Totals			**0.09**	**12.8**	**2.8**	**0.3**	**16.0**		**10,361**			

[1] Field ID assigned by EDR.

[2] Wetland community types are based upon the Cowardin et al. (1979) classification system: estuarine emergent wetland (EEM), palustrine emergent wetland (PEM), palustrine forested wetland (PFO).

[3] Stream type is based upon the Cowardin et al. (1979) classification system: tidal (R1), perennial (R3), and ephemeral (R6)

[4] Based on visual observation of hydrologic connectivity in the field and review of available spatial data. Final jurisdictional determination to be made by the USACE.

[5] Based on existing NJDEP mapping of wetlands and streams. See Sections 2.2 and 2.3 for additional information.

* Feature has been delineated via desktop and aerial imagery and has not been field verified.

+ Feature is located entirely within the O&M Facility Study Area

Most of these wetlands and streams are tidal or within 1,000 feet of the head of tide; therefore, USACE jurisdiction applies to some of the wetlands and streams identified as it relates to Section 404 of the Clean Water Act and Section 10 of the River and Harbors Act. Because the NJDEP also regulates all wetlands within the state, all of the delineated wetlands and streams are expected to be under their jurisdiction. Descriptions of the delineated wetlands and delineated streams within the Cardiff Study Areas are provided in Sections 4.1.1 and Section 4.1.2, respectively.

4.1.1 Wetlands

EDR field delineated 27 wetlands totaling approximately 16.0 acres within the Cardiff and O&M Facility Study Areas. Many of the wetlands identified contained more than one community type. The area of each community type is summarized in Table 3 and a detailed description is provided below which includes information to support resource classifications of ordinary or exceptional. Wetlands that do not satisfy the definition of ordinary or exceptional are assumed to be intermediate resource value.

Wetland 1A (WL1A) (EEM)

Wetland 1A (WL1A) is a complex of emergent tidal wetlands (EEM) along the Great Thorofare that are dominated by smooth cordgrass (*Spartina alterniflora*, OBL), glasswort (*Salicornia depressa*, OBL), seaside goldenrod (*Solidago sempervirens*, FACW), saltmeadow cordgrass (*Spartina patens*, FACW), sea lavender (*Limonium carolinianum*, OBL), and common reed (*Phragmites australis*, FACW). Soils ranged from a sand to sandy loam with a low chroma matrix (10 YR 4/2), additional soil characteristics identified during delineations included brightly colored mottles (5YR 4/6), criteria meeting the definition of a histic epipedon, and hydrogen sulfide odor; qualifying the soils as a hydric. Wetland hydrology indicators observed included standing water, soil saturation, tidal influence and oxidized rhizospheres on living roots. This wetland is assumed to be of exceptional resource value due to its tidal influence and importance to the tidal ecosystem as well as the documented threatened & endangered that utilize these wetlands.

Wetland 1 (WL1) (PEM)

Wetland 1 (WL1) is a depressional PEM wetland situated between US Route 40 (US-40) and the Atlantic City High School. Dominant vegetation consists of Japanese stilt grass (*Microstegium vimineum*, FAC). Soils observed on site met the criteria for a depleted matrix with 0 to 2 inches of 10YR 2/2 coarse sand and -18 inches of 2.5YR 4/2 coarse sand. Hydrology indicators observed during the site visit included surface water, a high-water table, and saturation. Soils could not be obtained after 8 inches below grade due to the high-water table and surface water. This wetland is assumed to be classified as exceptional due to the location of documented threatened species.

Wetland 2 (WL2) (EEM)

Wetland 2 (WL2) is a complex of emergent tidal wetlands that are fed by tidal streams and connected through culverts along US-40 and a railroad corridor. Dominant vegetation consists of saltmeadow cordgrass (*Spartina patens*, FACW) and smooth cordgrass (*Spartina alterniflora*, OBL) with patches of eastern red cedar (*Juniperus* virginiana, FACU) and high tide bush (*Iva annua*, FAC) present along the edges of the

wetland boundaries and meets the criteria for hydrophytic vegetation. Soils consisted of a thick layer of heavy organic matter with some sand and rocky material meeting the criteria for a histic epipedon and had a low chroma matrix (5Y 4/1) indicating that the soils were frequently inundated. Given these indicators, the soil met the criteria for hydric soil. Wetland hydrology indicators observed were ground surface inundation, tidal inundation, soil saturation, and hydrogen sulfide odor. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the location of documented threatened and endangered species.

Wetland 3 (WL3) (PEM)

Wetland 3 (WL3) is a PEM wetland located in a depression within an Atlantic City Electric (ACE) powerline ROW and adjacent to a pedestrian bike path which is a converted railroad corridor. Dominant vegetation consists of reed canary grass (*Phalaris arundinacea*, OBL), broadleaf cattail (*Typha latifolia*, OBL) and marshmallow (*Althaea officinalis*, FACW) and meets the hydrophytic plant community criteria. Soils were a sandy loam with a low chroma matrix (10YR 2/1) and mottles (5YR 5/6) indicating that the soil is inundated for significant periods of time throughout the year but a varying water level/soil saturation. Wetland hydrology indicators observed were soil saturation, geomorphic position, and water-stained leaves. This wetland is assumed to be of intermediate resource value because of its proximity to multiple paved roads and lack documented habitat for sensitive species.

Wetland 4 (WL4) (PEM)

Wetland 4 (WL4) is a PEM wetland located in a depression within an ACE powerline ROW located along a pedestrian bike path. Dominant vegetation consists of hairgrass (*Deschampsia cespitosa*, FACW) and meets the hydrophytic plant community criteria. Soils were an organic loam with a low chroma matrix (5YR 2/1), indicating the soil is saturated or inundated for long durations. Wetland hydrology indicators observed were soil saturation and geomorphic position. This wetland is assumed to be classified as exceptional due to the location of documented threatened species.

Wetland 5 (WL5) (PEM & PFO)

Wetland 5 (WL5) is a PEM/PFO wetland associated with Cedar Branch. The portion within the Cardiff Study Area is in a depression of an ACE powerline ROW located between a pedestrian bike path and West Jersey Avenue. Vegetation in the canopy was dominated by red maple (*Acer rubrum*, FAC) the understory manly consisted of spicebush (*Lindera benzoin*, FACW), red maple saplings, and high-bush blueberry (*Vaccinium corymbosum*, FACW). The herbaceous layer was dominated by moss, slender path rush (*Juncus tenuis*, FAC), and hairgrass. Based on the species observed, the hydrophytic plant community criteria were satisfied. Soils were an organic loam that met the criteria for a histic epipedon. In addition, soils were a low chroma matrix (5YR 2/1) indicating a long duration of soils saturation occurs. Wetland hydrology indicators observed were soil saturation, a high-water table, moss trim lines, buttressed and eroded tree roots, wet leaves, and a sparsely vegetated concave surface. This wetland is assumed to be classified as ordinary due to direct impacts of human activity and development surrounding the immediate area.

Wetland 6 (WL6) (PFO)

Wetland 6 (WL6) is a PFO wetland associated with a drainage culvert under the bike path and drains south. Dominant vegetation in the canopy consists of red maple (*Acer rubrum*, FAC), and the understory is dominated by black gum (*Nyssa sylvatica*, FAC) and red maple saplings. Dominant vegetation in the herbaceous layer consists of a sparse understory of cinnamon fern (*Osmunda cinnamomea*, FACW) and black gum seedlings. The species observed indicate the vegetation community met the hydrophytic plant community criteria. Soils were a loamy sand and masked with organic material, meeting criteria for a histic epipedon. In addition, soils were a low chroma matrix (10YR 3/2 and 2/1) indicating a long duration of soil saturation occurs. Wetland hydrology indicators observed include soil saturation, water-stained leaves, and geomorphic position. This wetland is assumed to be classified as ordinary due to direct impacts of human activity and development surrounding the immediate area.

Wetland 001 (W001), 001A (W001A) and 002 (W002) (PEM)

Wetlands 001 (W001), 001A (W001A) and 002 (W002) are a series of three man-made drainage basins constructed in uplands for the purposes of stormwater management. All of these basins now support hydrophytic vegetation and exhibit soils are that are heavily disturbed with placement of a heavy clay layer to aid in retention of stormwater. Additionally, all of these wetlands are connected through various underground pipes with inflow and outflow outfalls. Herbaceous vegetation in WL001 and WL002 consist of narrowleaf cattail (*Typha angustifolia*, OBL), spikerush (*Eleocharis palustris*, OBL), and common reed (*Phragmites australis*, FACW). WL001A is the most natural of the three; however, this area has clearly been excavated with spoils directly adjacent to the basin and a heavy clay layer observed. No other areas on the site or adjacent to these basins possessed a heavy clay layer indicating this layer was installed. However, this basin does exhibit characteristics that could be classified as a vernal pool such as sparsely vegetated, organic matter layer, and dries out at some point during the season. Overall, the species observed in these areas met the criteria for hydrophytic plant communities. Soils in WL001 and WL002 were a sandy loam with a high chroma matrix (2.5Y 5/4, 5YR 5/8) with mottles (10Y 7/1) or could not be accessed due to fencing. Soils in the vernal pool were a sandy clay texture with a high chroma matrix (10YR 5/4, 2.5YR 5/6) with mottles (5Y 6/8). Soils in these areas did not meet hydric soil criteria. Wetland hydrology indicators observed include standing water, soil saturation, a high-water table, algal mat or crust, water-stained leaves, oxidized rhizospheres, and aquatic fauna. Although these areas could be classified as a wetland, the infrastructure (i.e., wingwalls, outfalls, and installed clay layers) indicate these areas were constructed with the intent of stormwater control and are therefore not jurisdictional.

Wetland 003 (W003) (PEM)

Wetland 003 (W003) is a PEM wetland that is a stormwater feature encircled by a fence. Access to the feature was prohibited. Dominant herbaceous vegetation consists of narrowleaf cattail (*Typha angustifolia*, OBL) and dark green bulrush (*Scirpus atrovirens*, OBL) qualifying the vegetation as hydrophytic. Soils were inaccessible due to fencing. Wetland hydrology indicators observed included standing water, inundation visible on aerial imagery, geomorphic position and aquatic fauna. This wetland is assumed to be of

intermediate resource value because of its proximity to multiple paved roads and lack of documented habitat for sensitive species.

Wetland 004 (W004) (EEM)

Wetland 004 (W004) is an EEM wetland that is connected to Lakes Bay and situated adjacent to US-40. Dominant vegetation consists of high tide bush (*Iva frutescens*, FACW) in the shrub layer and common reed (*Phragmites australis*, FACW) in the herbaceous layer, meeting criteria for hydrophytic vegetation. Soils were inaccessible due to fencing around the wetland. Hydrology indicators observed include standing water, inundation visible on aerial imagery, geomorphic position, and aquatic fauna. This wetland is assumed to be of exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened & endangered species.

Wetlands 005 (W005) (POW/EEM), 005A (W005A) (EEM) and 005B (W005B) (EEM)

Wetland 005 (W005) is a POW wetland with a separate section of EEM wetland and wetlands 005A (W005A) and 005B (W005B) are EEM wetlands that are interconnected through pipes. The wetlands are also bisected by US-40. Dominant vegetation consists of common duckweed (*Lemna minor,* OBL) and smooth cordgrass (*Spartina alterniflora*, OBL), meeting criteria for hydrophytic vegetation. In certain areas soils were inaccessible due to deep water, in other areas soils had a low chroma matrix (10YR 4/1) with mottles (7.5YR 4/6) meeting criteria for a depleted matrix and qualifying as a hydric soil. Hydrology indicators observed include standing water, saturated soils, a high-water table, true aquatic plants, drainage patterns, algal mat or crust, hydrogen sulfide odor, inundation visible on aerial imagery, geomorphic position, and aquatic fauna. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened & endangered species.

Wetland 006 (W006) (EEM)

Wetland 006 (W006) is an EEM wetland that is connected to Lakes Bay and situated adjacent to US-40. Dominant vegetation consists of common reed (*Phragmites australis*, FACW) meeting criteria for hydrophytic vegetation. Soils displayed a low chroma matrix (10YR 2/1 and 2.5Y 5/4) with mottles (7.5YR 6/6) that met criteria for a Dark Surface soils classification and qualify the soils as hydric soil. Hydrology indicators observed include inundation visible on aerial imagery, geomorphic position, and drainage patterns. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened & endangered species.

Wetland 007 (W007) (EEM)

Wetland 007 (W007) is an EEM wetland that is a salt marsh community connected to Lakes Bay and situated adjacent to US-40. Dominant vegetation consists of common reed (*Phragmites australis*, FACW) meeting criteria for hydrophytic vegetation. Soils displayed a low chroma matrix (10YR 2/1 and 2.5Y 5/4) with mottles (7.5YR 6/6) that met criteria for a Dark Surface soils classification and qualify the soils as hydric soil. Hydrology indicators observed include inundation visible on aerial imagery, geomorphic position, and

drainage patterns. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened & endangered species.

Wetland 26-W001 (EEM)

Wetland 26-W001 is a salt marsh community (EEM) that is situated between Great Thorofare and US-40. Dominant vegetation consists of salt meadow cordgrass (*Spartina patens*, FACW) and smooth cordgrass (*Spartina alterniflora*, OBL). Soils could not be obtained during the site visit due to soil inundation. Hydrology indicators observed during the site investigation included surface water, a high-water table, saturation, iron deposits, and hydrogen sulfide odor. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened & endangered species.

Wetland 26-W002 (EEM)

Wetland 26-W002 is a salt marsh community (EEM) that is situated between tributaries of Great Thorofare and US-40. Dominant vegetation consists of salt meadow cordgrass (*Spartina patens*; FACW) and smooth cordgrass (*Spartina alterniflora*, OBL). Other species present included Virginia glasswort (*Salicornia depressa*, OBL) and common reed (*Phragmites australis*, FACW). Soils observed on site met the criteria for a Histosol with a soil profile of 0 to 6 inches of 10YR 2/1 Mucky Peat and 6 to 18 inches of 10YR 3/1 muck. Hydrology indicators observed during the site investigation included surface water, a high-water table, saturation, and hydrogen sulfide odor. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened & endangered species.

Wetland 26-W005 (PEM)

Wetland 26-W005 is a PEM wetland situated south of West Jersey Avenue. Dominant vegetation consisted of common reed (*Phragmites australis*, FACW). Soils observed on site met the criteria for depleted matrix with a soil profile of 0 to 3 inches of 10YR 2/1 sandy loam and 3 to 12 inches of 10YR 5/1 sandy loam with 10YR 6/6 redox concentrations in the pore lining. Hydrology indicators observed during the site investigation included surface water, a high-water table and saturation. This wetland is assumed to be classified as exceptional due to documented state threatened species.

Wetland 26-W006 (PFO)

Wetland 26-W005 is a PFO wetland situated south of West Jersey Avenue and east of Mountain Lane. Wetland 26-W005 is adjacent to 26-ST002 (Cedar Branch). Dominant vegetation consisted of red maple (*Acer rubrum*, FAC). Soils observed on site met the criteria for thick Dark Surface with a soil profile of 0 to 16 inches of 10YR 2/1 muck. Hydrology indicators observed during the site investigation included a high-water table and saturation. This wetland is assumed to be classified as exceptional due to the non-disturbed location of documented threatened species.

Wetland 26-W007 (EEM)

Wetland 26-W007 is a EEM wetland situated between US-40 and the entrance ramp for US-40. The wetland may have a hydrologic connection to the salt marsh to the south (Wetland 26-W007A) and subsequently Great Thorofare. Dominant vegetation consisted of common reed (*Phragmites australis*, FACW). Soils observed on site met the criteria for depleted matrix with a soil profile 0 to 4 inches of 10YR 3/1 sandy loam and 4 to 6 inches of 10YR 5/2 sand. Hydrology indicators observed during the site investigation included a high-water table, saturation, and water-stained leaves. The high-water table prevented soil sampling from progressing beyond 6 inches below grade. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened and endangered species.

Wetland 26-W007A (EEM)

Wetland 26-W007A is a salt marsh community (EEM) situated between US-40 and Great Thorofare. Dominant vegetation consisted of salt meadow cordgrass (*Spartina patens*, FACW). Soils observed on site met the criteria for a depleted matrix with a soil profile of 0 to 10 inches of 10YR 2/1 muck and 10 to 12 inches 10YR 5/1 fine sand. Hydrology indicators observed during the site investigation included surface water, a high-water table, saturation, and hydrogen sulfide odor. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened and endangered species.

Wetland 26-W008 (EEM)

Wetland 26-W008 is an EEM wetland located between a paved parking lot and the Clam Creek portion of Absecon Inlet. Dominant vegetation consisted of common reed (*Phragmites australis*, FACW). Soils were not taken during the site investigation as the wetland area was covered by riprap and gravel. Hydrology indicators observed during the site investigation included surface water. These wetlands are assumed to be exceptional resource value due to their tidal influence, importance to the tidal ecosystem, and the proximity of documented threatened and endangered species.

Wetlands 99-W23 (99-W23), 99-W24 (99-W24), and 99-W25 (99-W25) (PEM)

Wetlands 99-W23 (99-W23), 99-W24 (99-W24), and 99-W25 (99-W25) are three PEM wetlands located within an existing, maintained ACE utility roadway/ROW along Roberta Avenue. These wetlands are in early stages of development due to the previous development of the utility roadway/ROW, including recent activities leading to further compaction and grading Vegetation consisted of several herbaceous species across the three wetlands, with dominant species consisting of watershield (*Brasenia schreberi*, OBL), rice cut grass (*Leersia oryzoides*, OBL), and common reed (*Phragmites australis*, FACW). The wetland-upland transition was very abrupt due to the maintenance of the utility roadway/ROW. Some upland areas were located lower in elevation than the wetlands, due to the compaction and grading of the utility roadway/ROW. Soils were problematic with frequent refusal due to compaction. Soils observed in wetland 99-W25 showed signs of recent redox processes (5Y 3/2 concentrations in the matrix), possibly due to compaction and the reduced ability of water to move through the soil. Soil in the immediate adjacent area

on either side of the utility roadway/ROW are sandy, porous, and very well drained. Wetland hydrology indicators observed included standing water, saturation, and water-stained leaves. These wetlands are assumed to be of ordinary resource value due to the location of the wetlands within an existing, maintained utility roadway/ROW and frequent disturbance from vehicular access/use.

4.1.2 Surface Waters

EDR field delineated eight surface waters and desktop delineated one surface water that includes streams, thoroughfares, harbors, and other surface drainage features within the Cardiff Study Area and O&M Facility Study Areas. Descriptions of each watercourse are presented in this subsection. One watercourse (WC9) located along the shore of the proposed O&M Facility on the Clam Creek portion of Absecon Inlet has been delineated via desktop aerial imagery and has not been field verified. This area, which includes open water within the active navigation channel, was desktop evaluated due to lack of access for safety, security, or property owner concerns within the O&M Facility Study Area. A description of this surface waters identified as part of the desktop evaluation is not provided. When field delineations have been conducted, this report will be updated with the description of this surface water.

Watercourse 3 (WC3) – Tidal (R1)

Watercourse 3 (WC3) is a tidal creek that is directly connected to the Great Thorofare and flows under US-40. The approximate bank width ranged from 4 to 15 feet depending on location (it was narrowest at the farthest point from Great Thoroughfare. At the time of field studies, water depth was greater than 1 foot and rising with the tide.

Watercourse 4 (WC4) – Tidal (R1)

Watercourse 4 (WC4) is a tidal creek that is directly connected to the Great Thorofare and flows under US-40. The approximate bank width ranged from 80 feet to 4 feet depending on location (it was narrowest at the farthest point from Great Thoroughfare well north of the Cardiff Study Area. At the time of field studies, water depth was inaccessible due to steep and often soft banks.

Watercourse 5 (WC5) – Ephemeral (R6)

Watercourse 5 (WC5) is Mill Branch, a channelized swale that flows via culvert under a pedestrian bike path from north to south. At the time of field studies, no flow was present but had a gentle slope and an approximate bank width of 5 feet. This watercourse was also characterized by overhanging canopy vegetation, channelization, channel armoring (around the culvert intake and outflow), and substrate that consisted of sand, silt, and gravel.

Watercourse 6 (WC6) – Ephemeral (R6)

Watercourse 6 (WC6) is a channelized swale that flows under a pedestrian bike path via culvert from north to south. This drainage eventually connects with Mill Branch several hundred feet south of the Cardiff Study Area. At the time of delineation, no flow was present; however, this watercourse has a gentle slope and an approximate bank width of 6 feet. This watercourse was also characterized by overhanging vegetation, channelization, channel armoring (around the culvert intake and outflow), and substrate that consisted of sand, silt, and gravel.

Watercourse 9 (WC9) – Tidal (R1)

Watercourse 9 (WC9) is a tidal waterbody, the Atlantic City Harbor, that borders the proposed O&M Facility and Parking Lot. Due to security restrictions, this waterbody was not surveyed and was evaluated via desktop only.

Watercourse S001 – Tidal (R1)

Watercourse S001 is a tidal waterbody, the Inside Thorofare, the Beach Thorofare, and the Great Thorofare. The watercourse was inaccessible due to steep banks and areas protected by concrete banks and was evaluated from bridge crossings and measured via desktop measurements.

Stream 002 (26-ST002) (R3)

Stream 002 (26-ST002) is a perennial stream and part of Cedar Branch, which eventually flows into Mill Branch. 26-ST002 had a depth of approximately 5 inches with a gentle stream gradient of 0 to 5%. The bank width of the stream was approximately 6 to 8 feet, depending on location. The substrate consisted of sand, silt, and clay. Stream 002 (26-ST002) flows into and adjacent to wetland 26-W006 and connects to WL5 to the north via a culvert which runs underneath West Jersey Avenue and the Atlantic County Bikeway.

Stream 003 (26-ST003) (R6)

Stream 003 (26-ST003) is an ephemeral swale south of West Jersey Avenue. There was no surface water or saturation present at the time of the site investigation. There is a culvert that runs underneath West Jersey Avenue and the Atlantic County Bikeway between 26-ST003 and WL6 to the north. However, there was no perceptible flow between the two features at the time of the site investigation. Stream 003 (26-ST003) is not a mapped feature.

Stream 010 (26-ST010) (R3)

Stream 010 (26-ST010) is a perennial stream located south of West Jersey Avenue. It is connected to WC5 to the north via a culvert which runs underneath West Jersey Avenue and the Atlantic County Bikeway. 26-ST010 had a depth of more than 12 feet at Thalweg with a gentle stream gradient of 0 to 5%. The bank width of the stream was approximately 10 to 14 feet, depending on location. The substrate consisted of bedrock, gravel, and sand.

5.0 CONCLUSIONS

EDR conducted a wetland and watercourse delineation in June and December 2020, September 2021, June 2022, February 2023, and September 2023 for the Atlantic Shores proposed onshore interconnection cable route to the Cardiff POI and associated onshore infrastructure sites. A total of 27 wetlands totaling approximately 16.0 acres and 8 watercourses totaling approximately 10,197 linear feet were identified and delineated within the Cardiff Study Area. One watercourse (WC9) totaling 164 linear feet and located within the O&M Facility Study Area has been delineated via desktop. This resource was identified and approximated using aerial imagery and other publicly available data sources.

All wetlands and watercourses are under the jurisdiction of the NJDEP under the Freshwater Wetlands Protection Act and/or Wetlands Act of 1970 (coastal wetlands). In additional, all tidally influenced systems are also under the jurisdiction of the USACE under Section 10 of the River and Harbors Act and the Section 404 of the Clean Water Act. Any wetlands and watercourses greater than 1,000 feet upslope from the head of tide are under the assumed jurisdiction of NJDEP.

This wetland and waterway delineation and presumed jurisdictional determination should not be considered final until a Letter of Interpretation (LOI) is issued by the NJDEP, and a review has been conducted by the USACE concurring with the location, extent, and jurisdiction of the wetlands and watercourses identified. NJDEP will also need to confirm the resource value classification presented in Table 3.

6.0 REFERENCES

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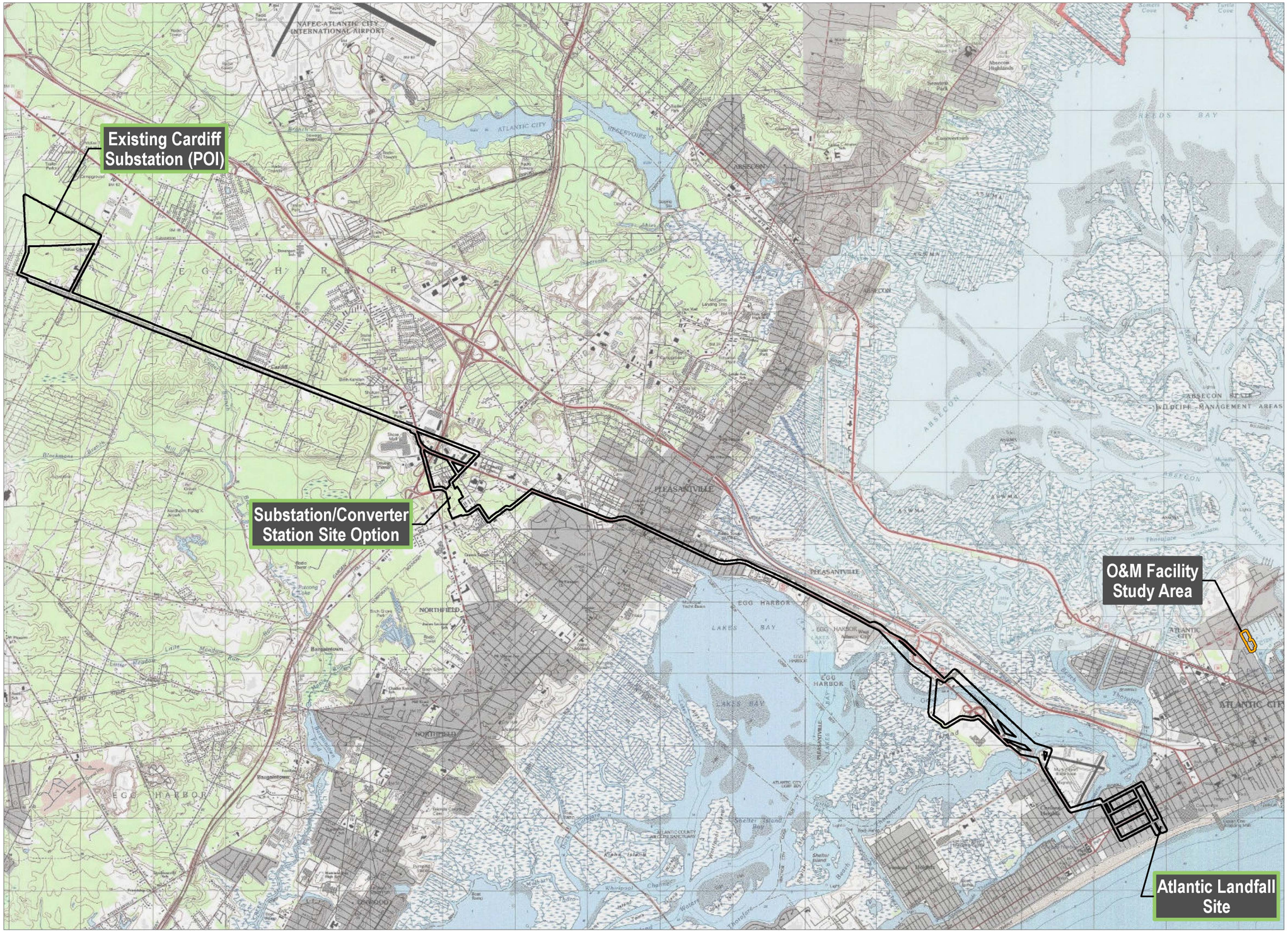
Appendix A

Figures

Figure 1

Project Location Map

Figure 1. USGS Project Location Map



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

0 1,500 3,000 6,000

Feet

Prepared December 12, 2023

Basemap: ESRI ArcGIS Online "USA Topo Maps" map service.

ATLANTIC SHORES offshore wind

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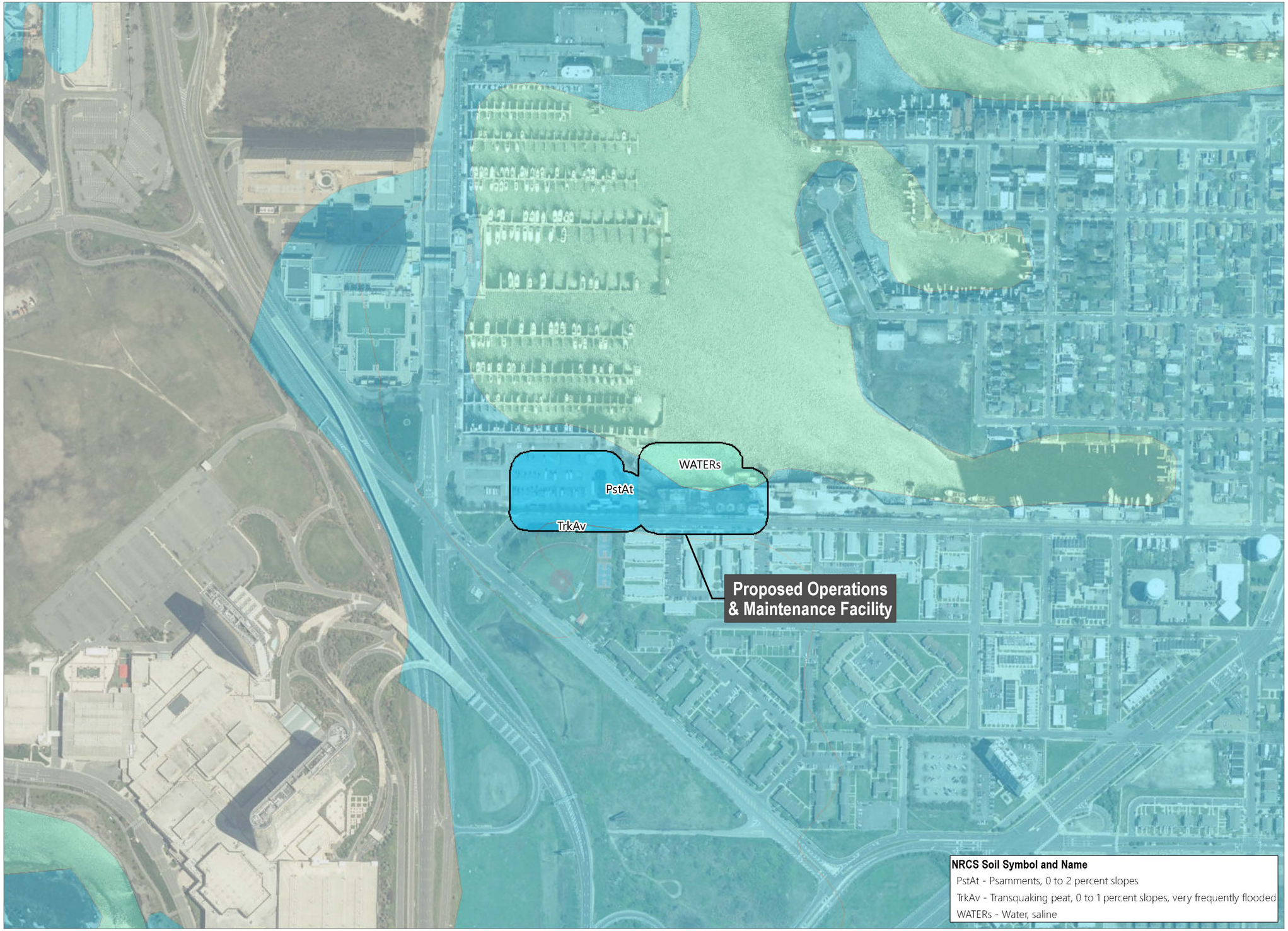
Figure 2

SSURGO Soils Map

Figure 2. Soils Map



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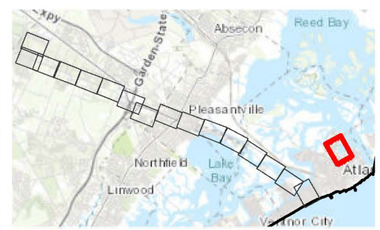
City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

NRCS (SSURGO) Soils

- Hydric
- Partially Hydric*
- Water
- Not Hydric



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Feet

Prepared December 12, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

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NRCS Soil Symbol and Name

PstAt - Psamments, 0 to 2 percent slopes

TrkAv - Transquaking peat, 0 to 1 percent slopes, very frequently flooded

WATERs - Water, saline

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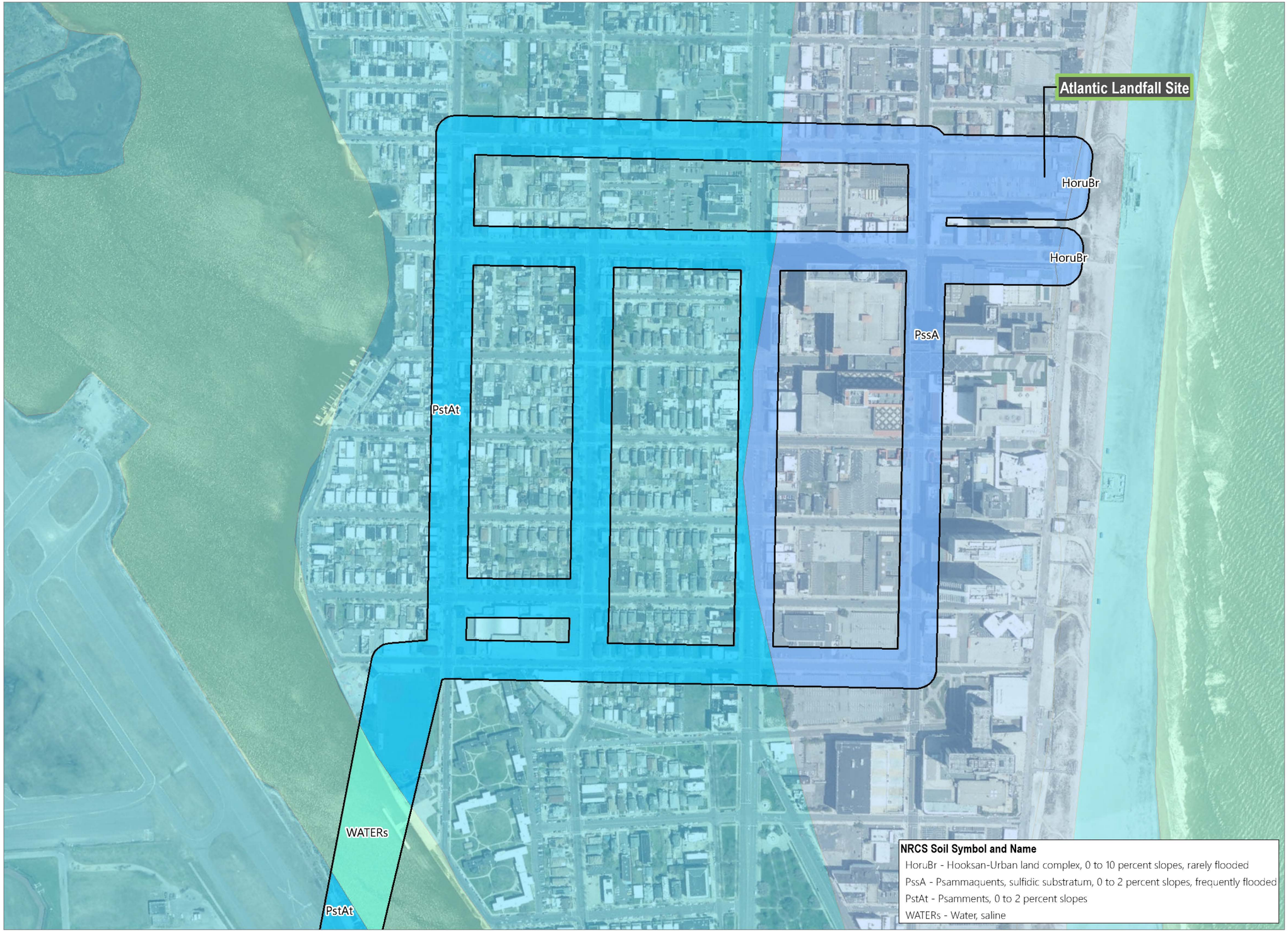

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City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

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0 100 200 400

Feet

Prepared November 22, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

NRCS Soil Symbol and Name

HoruBr - Hooksan-Urban land complex, 0 to 10 percent slopes, rarely flooded

PssA - Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded

PstAt - Psamments, 0 to 2 percent slopes

WATERs - Water, saline

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ATLANTIC SHORES offshore wind

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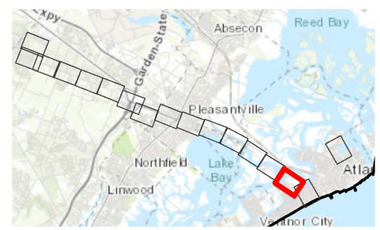

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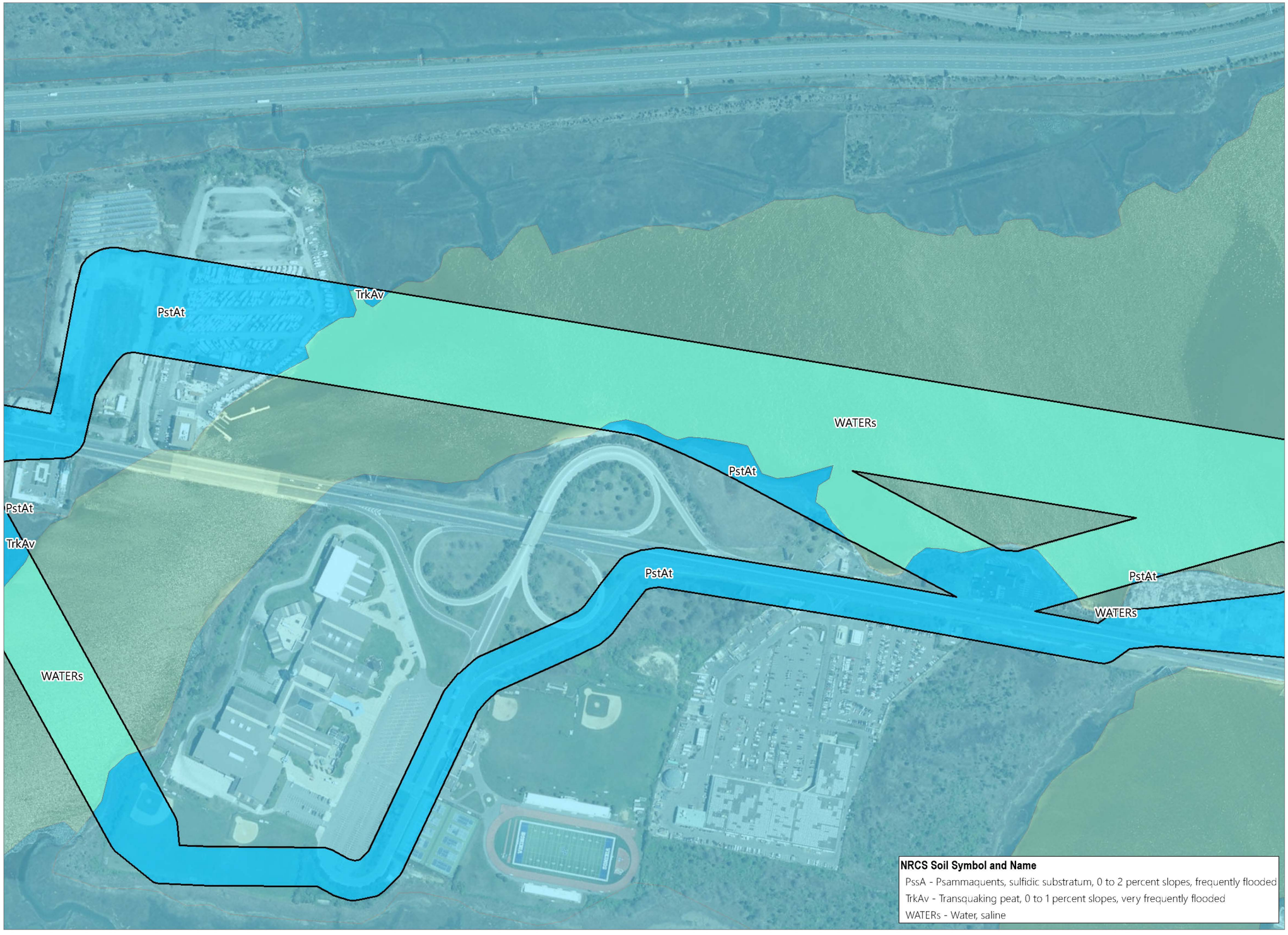

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City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

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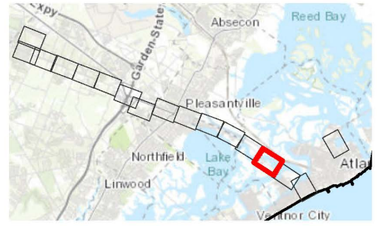

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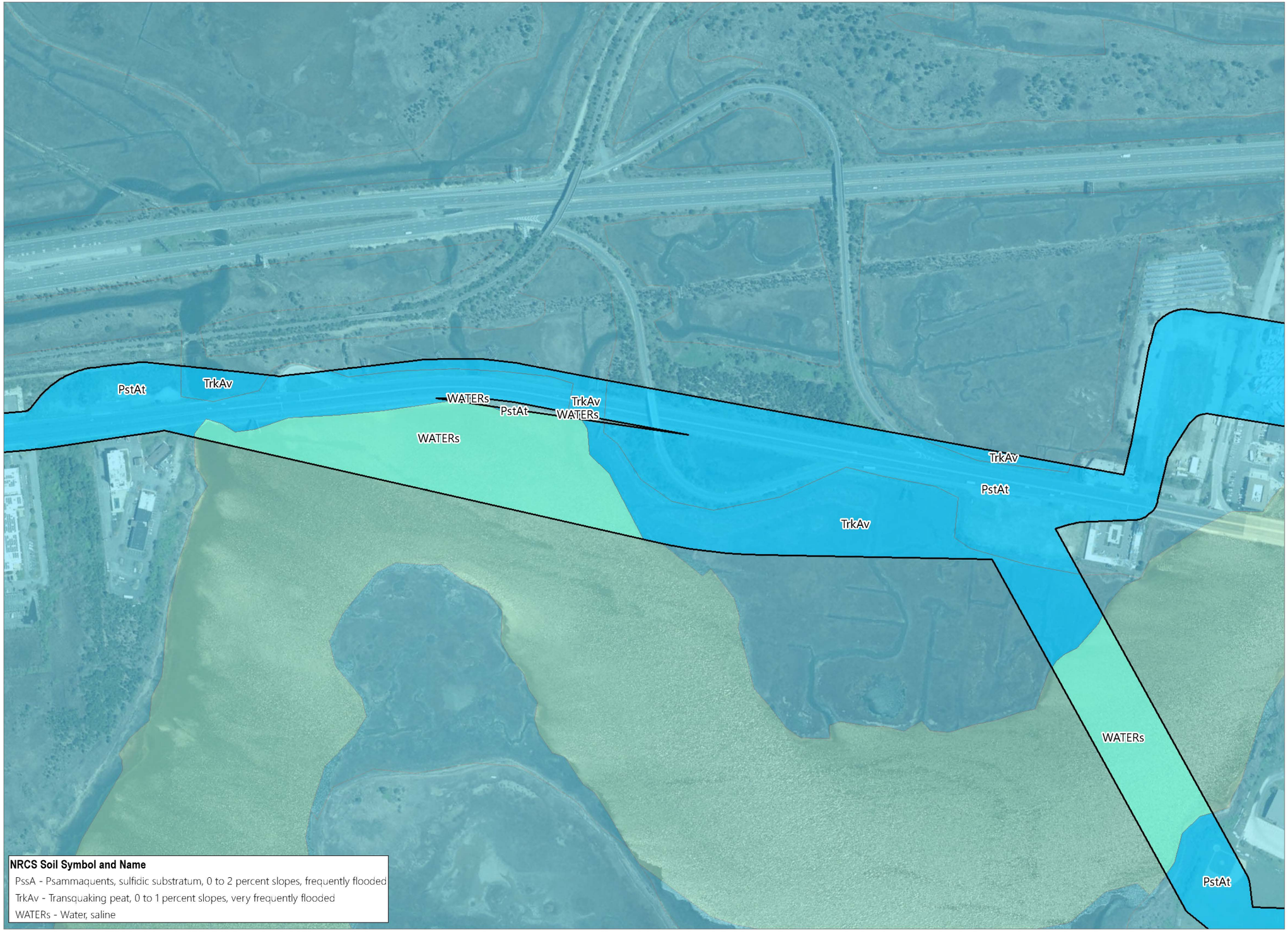
ATLANTIC SHORES offshore wind

EDR



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

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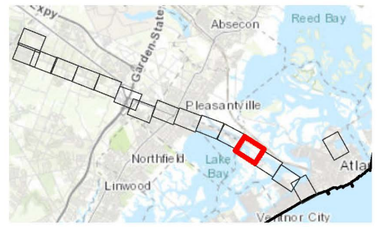

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EDR

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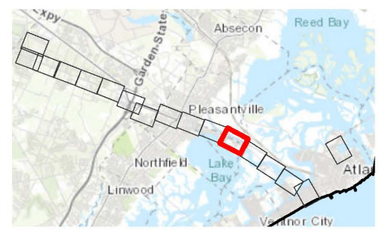

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ATLANTIC SHORES offshore wind

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Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

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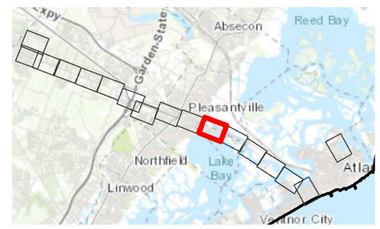

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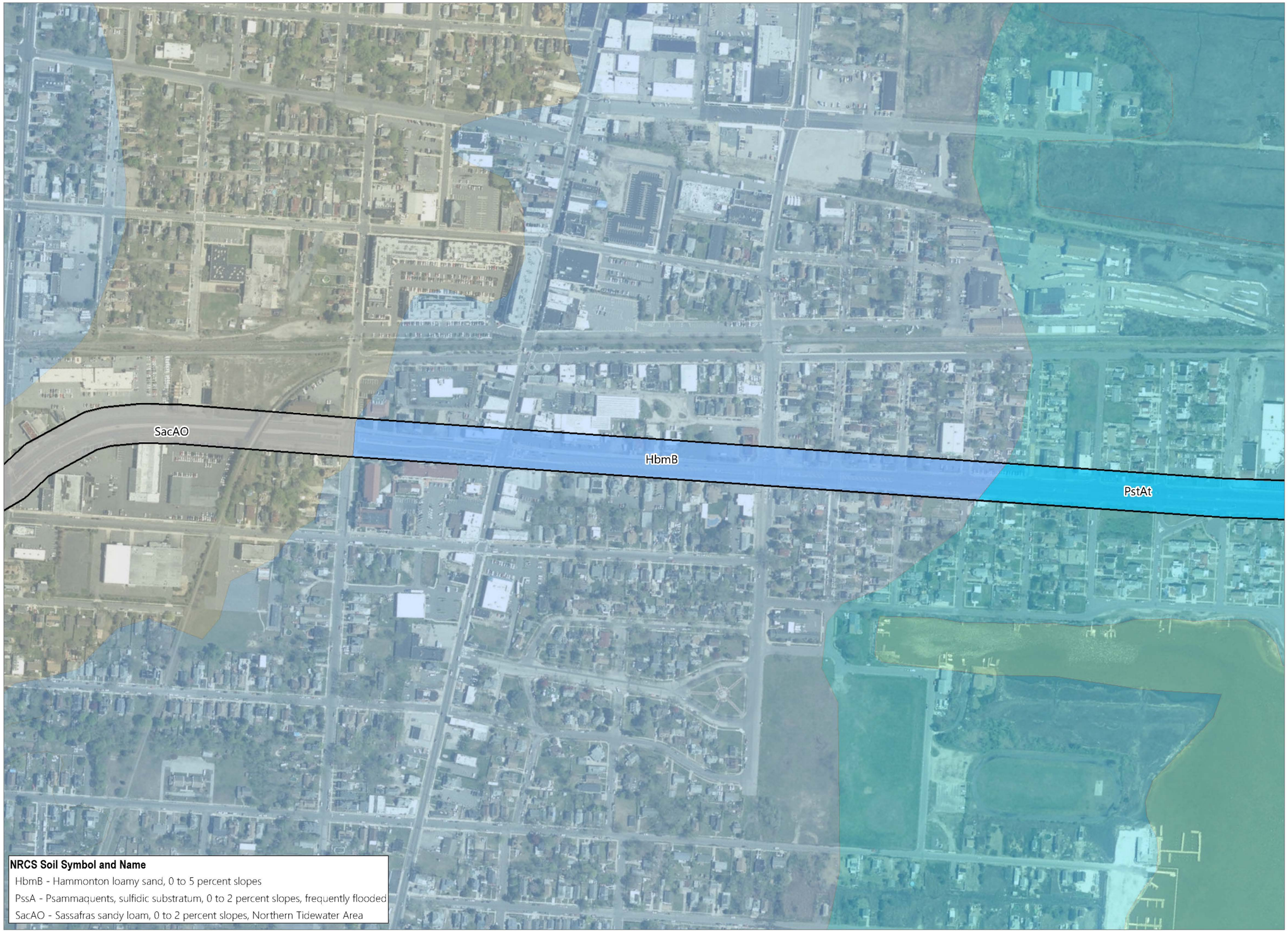
ATLANTIC SHORES offshore wind

EDR



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

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- Hydric
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0 100 200 400

Feet

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ATLANTIC SHORES offshore wind

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Figure 2. Soils Map

NRCS Soil Symbol and Name

GamB - Galloway loamy sand, 0 to 5 percent slopes
PstAt - Psamments, 0 to 2 percent slopes
SacAO - Sassafras sandy loam, 0 to 2 percent slopes, Northern Tidewater Area

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

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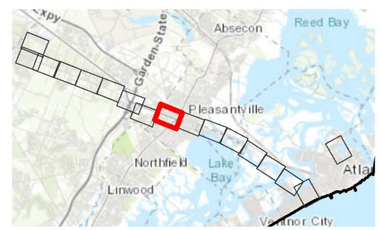

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Feet

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ATLANTIC SHORES offshore wind

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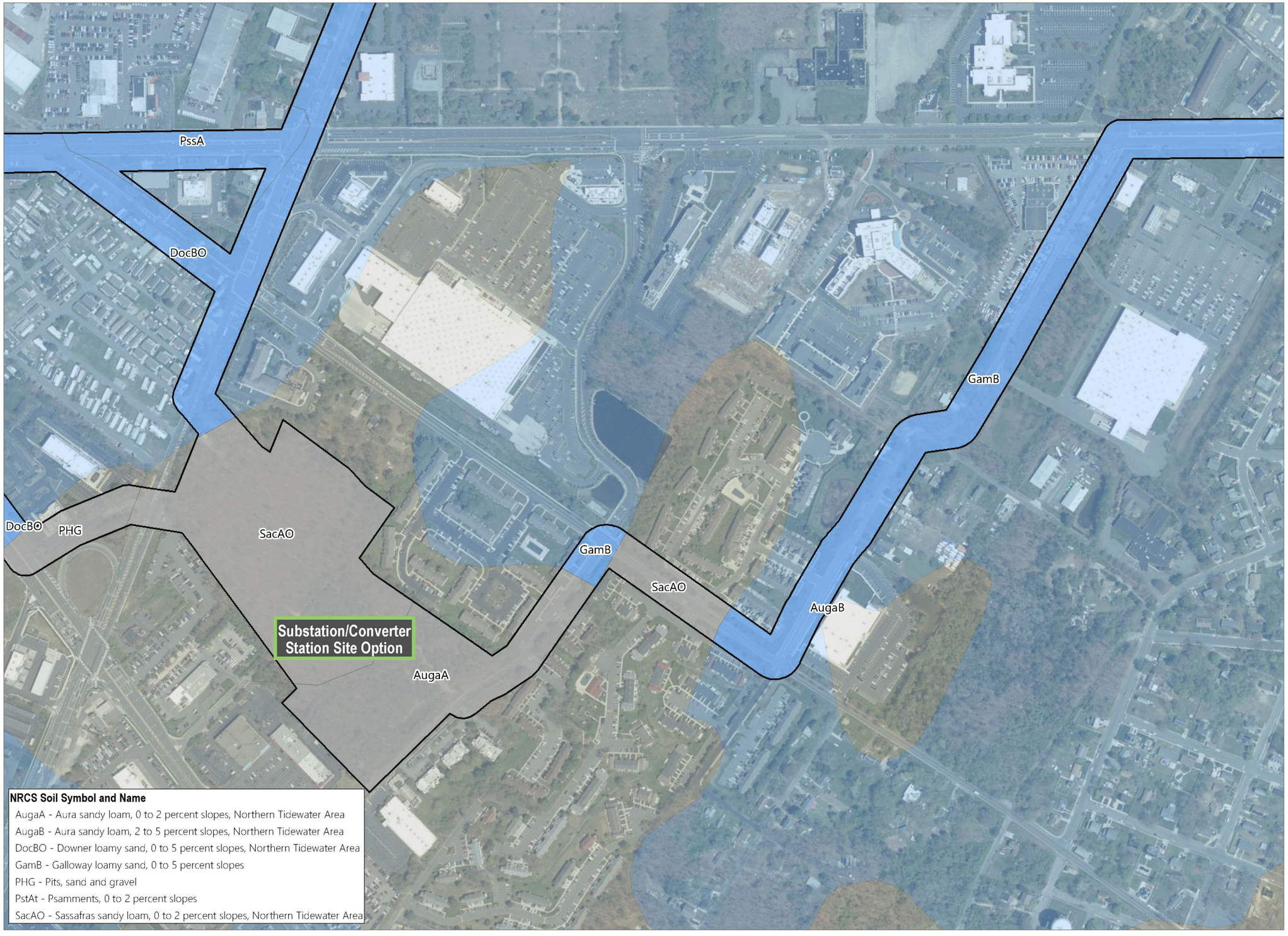

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

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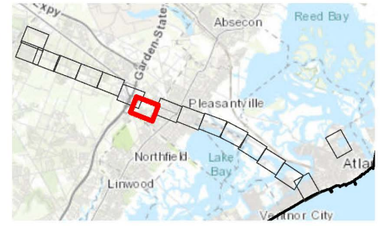

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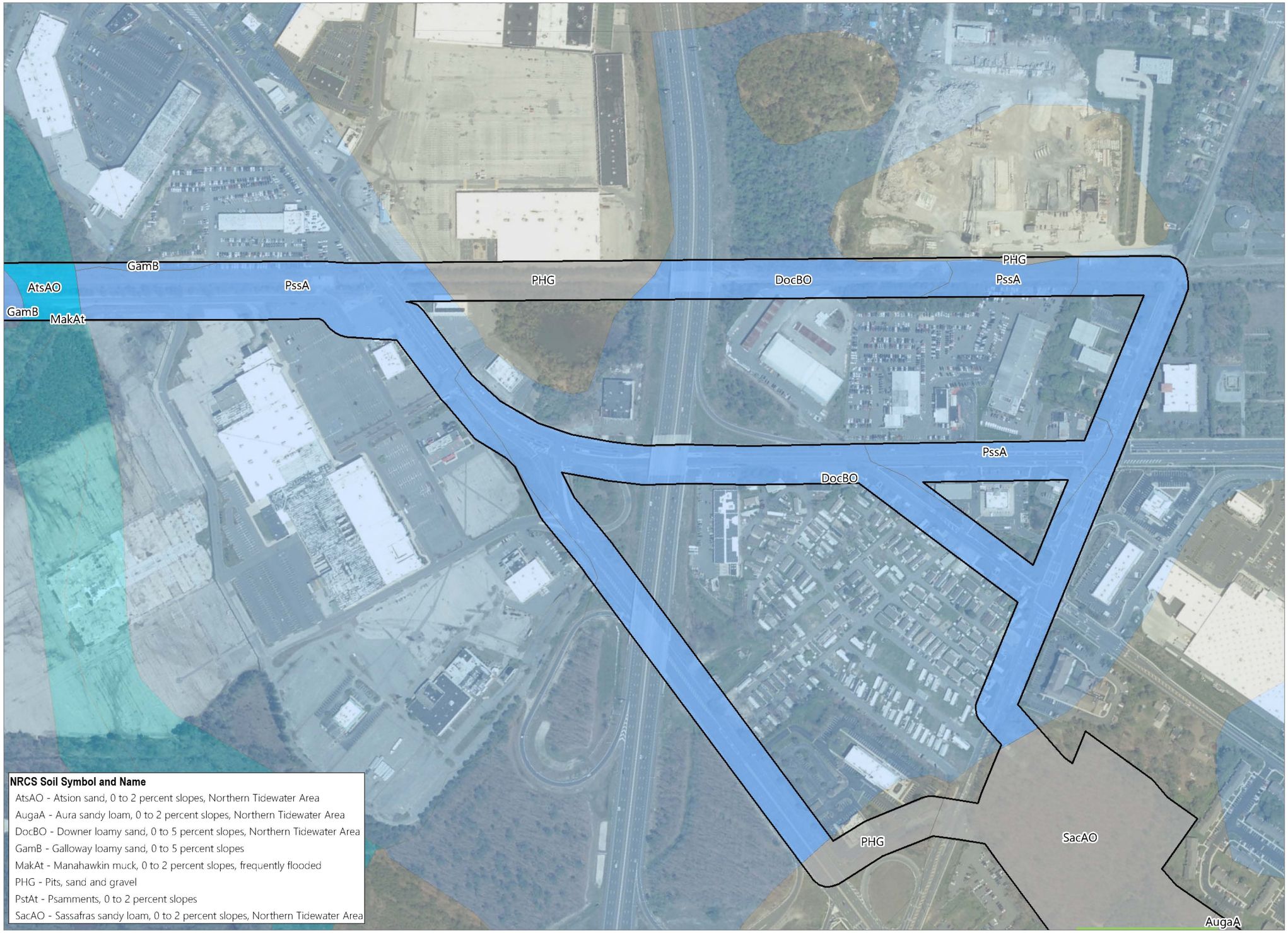
ATLANTIC SHORES offshore wind

EDR



NRCS Soil Symbol and Name

AtsAO - Atsion sand, 0 to 2 percent slopes, Northern Tidewater Area
AugaA - Aura sandy loam, 0 to 2 percent slopes, Northern Tidewater Area
DocBO - Downer loamy sand, 0 to 5 percent slopes, Northern Tidewater Area
GamB - Galloway loamy sand, 0 to 5 percent slopes
MakAt - Manahawkin muck, 0 to 2 percent slopes, frequently flooded
PHG - Pits, sand and gravel
PstAt - Psamments, 0 to 2 percent slopes
SacAO - Sassafras sandy loam, 0 to 2 percent slopes, Northern Tidewater Area

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

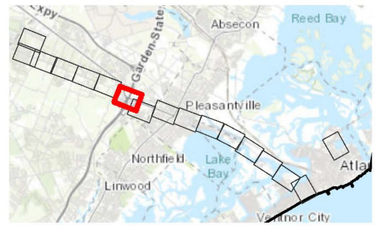
NRCS (SSURGO) Soils

Hydric

Partially Hydric*

Water

Not Hydric



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Feet

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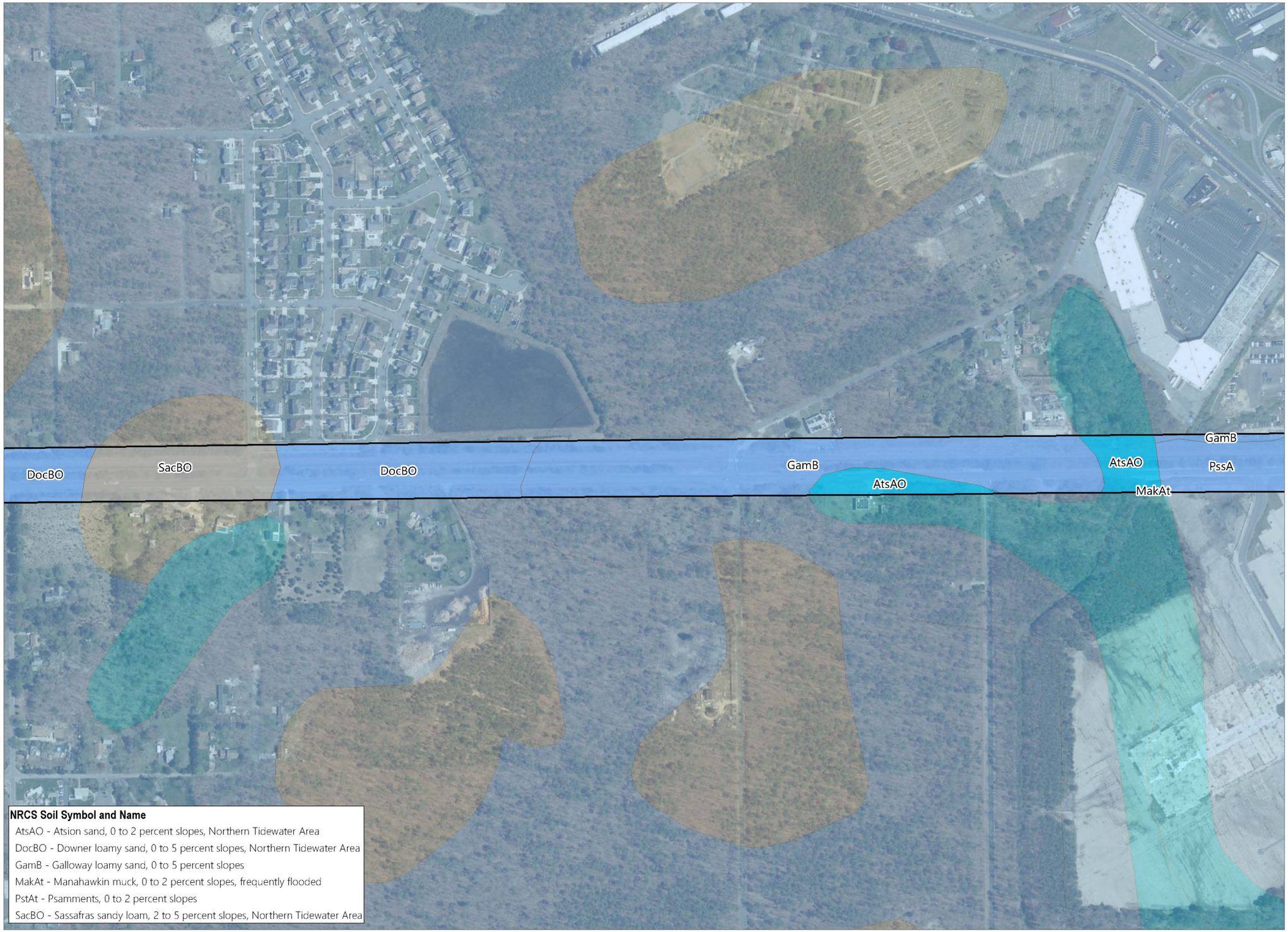
ATLANTIC SHORES offshore wind

EDR

Figure 2. Soils Map



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Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

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Feet

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ATLANTIC SHORES offshore wind

EDR

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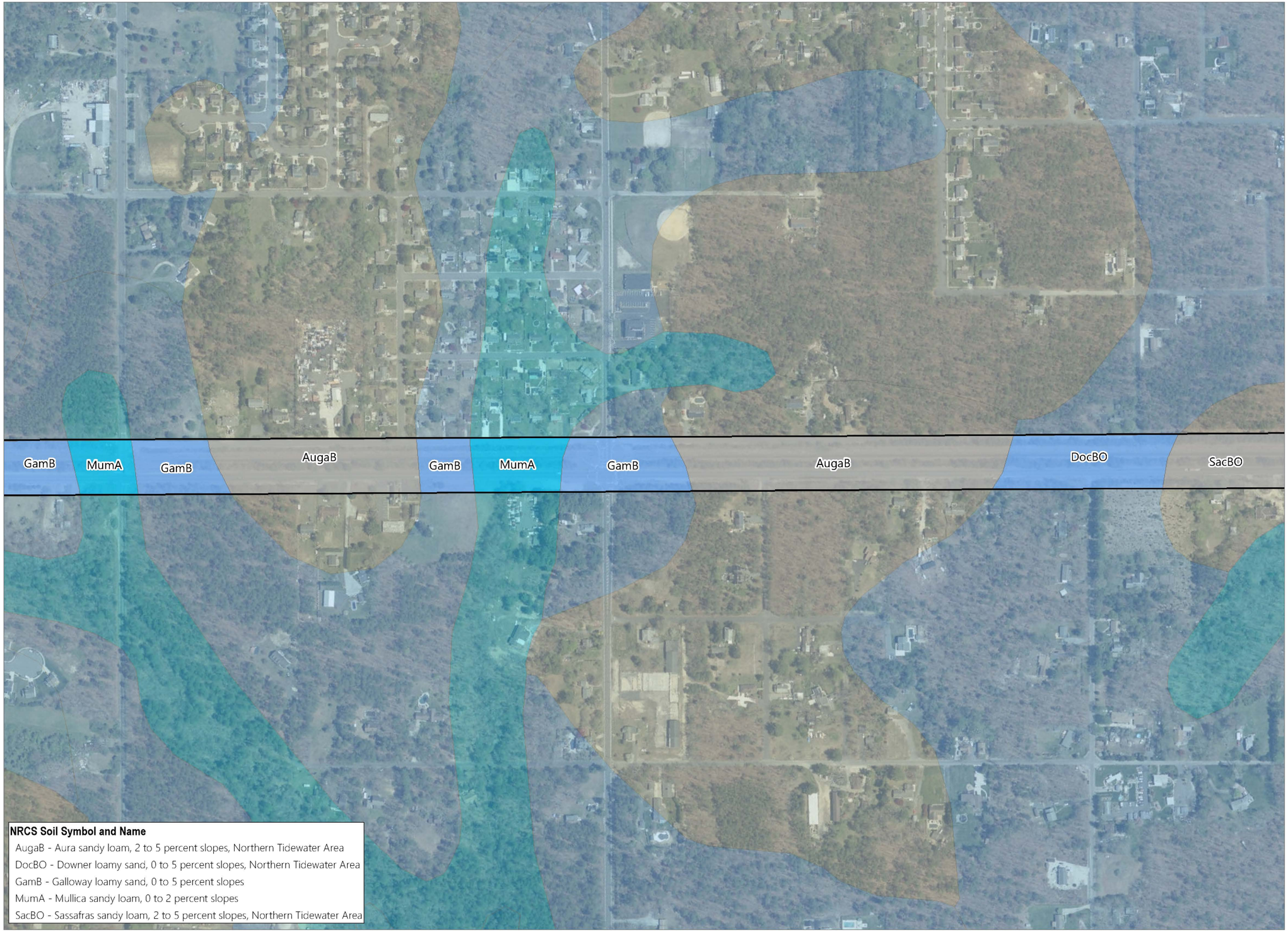

NRCS Soil Symbol and Name

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DocBO - Downer loamy sand, 0 to 5 percent slopes, Northern Tidewater Area
GamB - Galloway loamy sand, 0 to 5 percent slopes
MumA - Mullica sandy loam, 0 to 2 percent slopes
SacBO - Sassafras sandy loam, 2 to 5 percent slopes, Northern Tidewater Area

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Wetland Delineation Report

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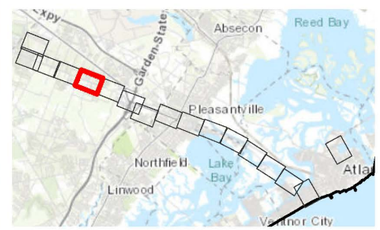

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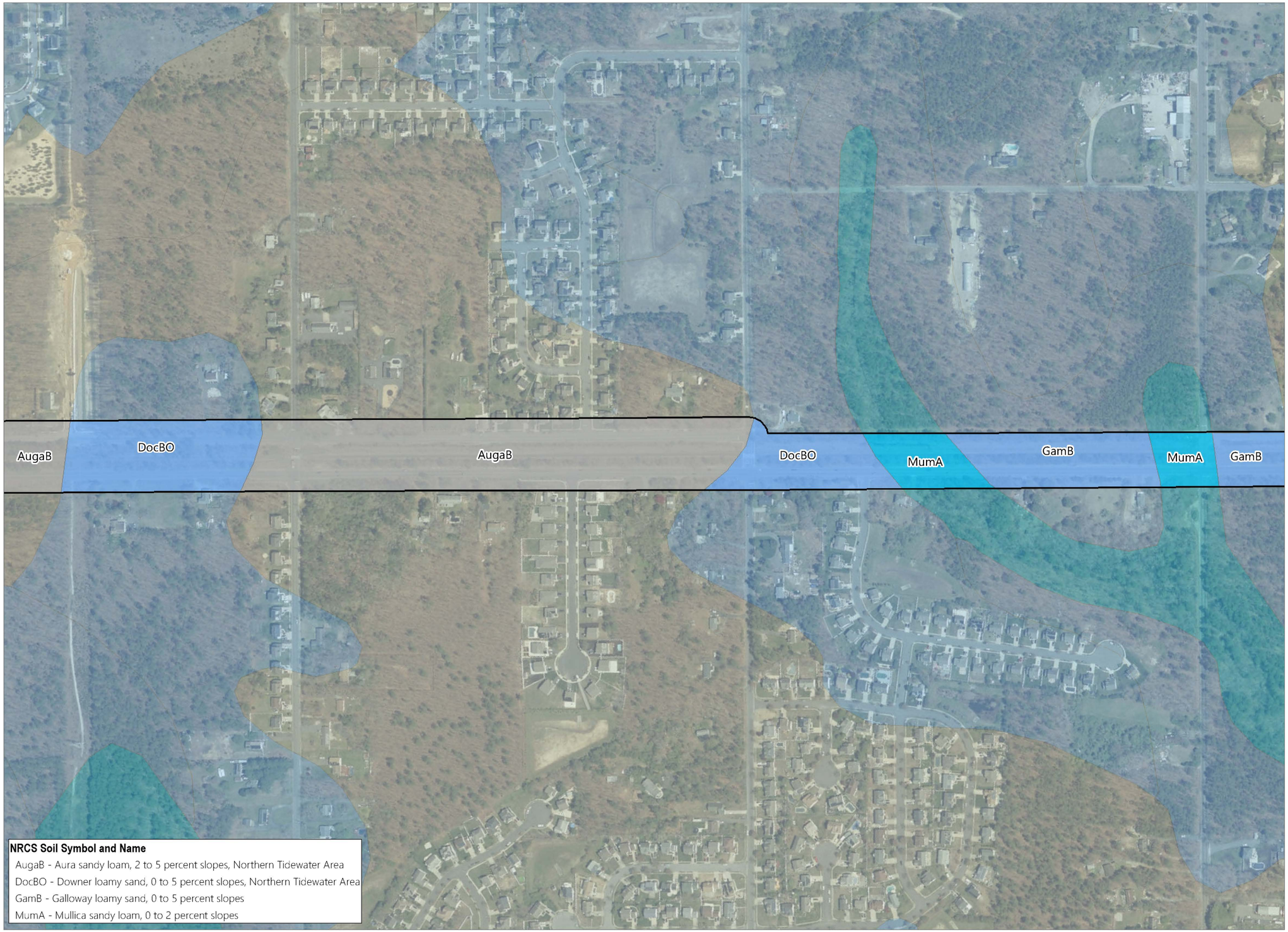

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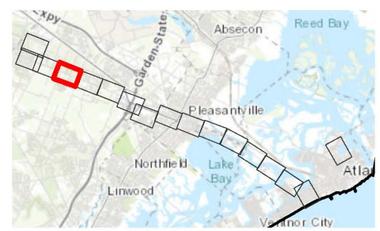
NRCS (SSURGO) Soils

- Hydric
- Partially Hydric*
- Water
- Not Hydric



0 100 200 400

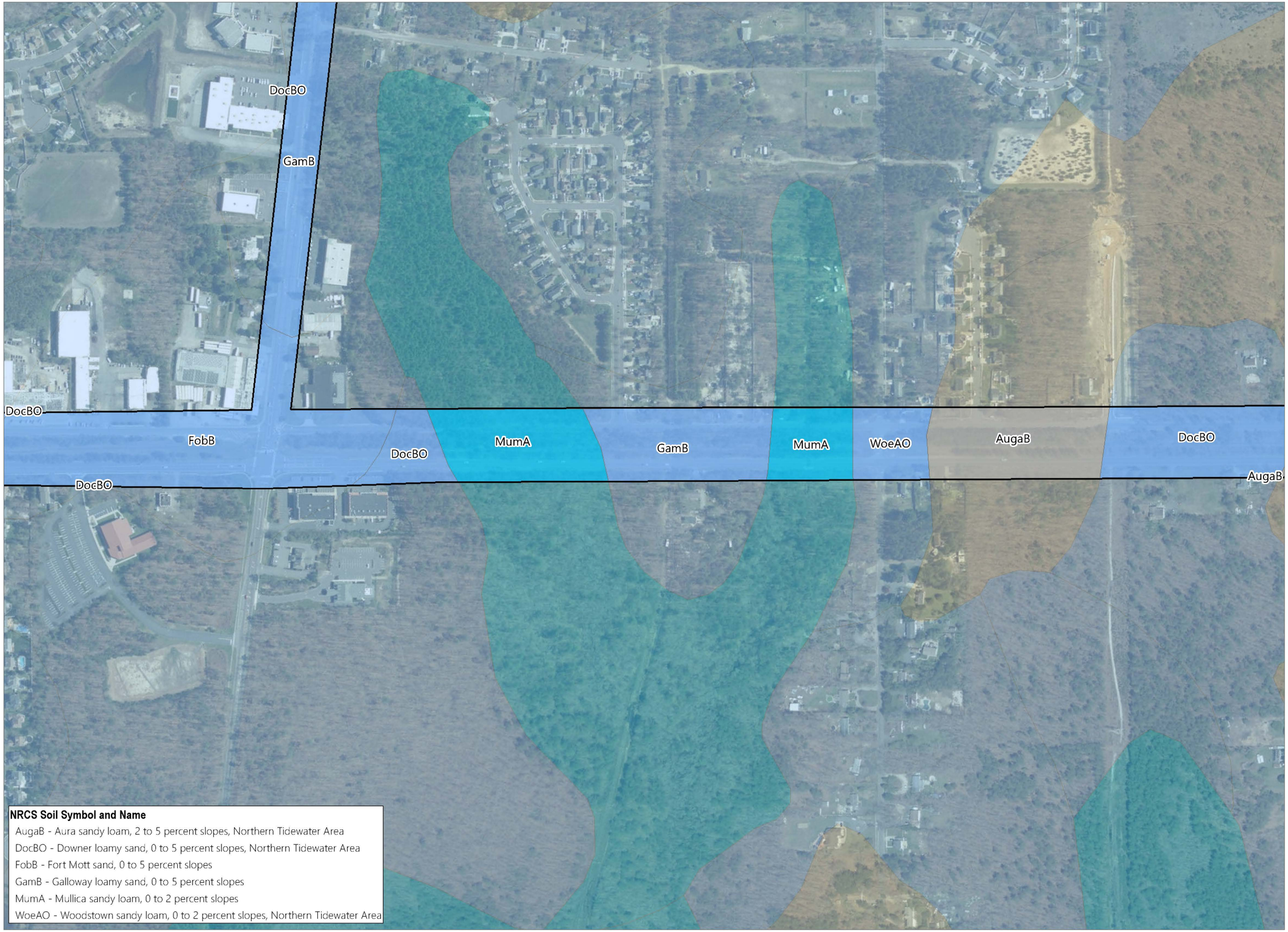
Feet

Prepared November 22, 2023
Basemap: NJ Office of GIS 2020 Natural Color Imagery

*Partially Hydric Status indicates that the major soil component is classified as not hydric but includes minor soil components that are classified as hydric

ATLANTIC SHORES offshore wind

EDR



NRCS Soil Symbol and Name

AugaB - Aura sandy loam, 2 to 5 percent slopes, Northern Tidewater Area
DocBO - Downer loamy sand, 0 to 5 percent slopes, Northern Tidewater Area
FobB - Fort Mott sand, 0 to 5 percent slopes
GamB - Galloway loamy sand, 0 to 5 percent slopes
MumA - Mullica sandy loam, 0 to 2 percent slopes
WoeAO - Woodstown sandy loam, 0 to 2 percent slopes, Northern Tidewater Area

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

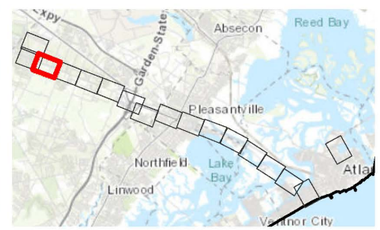
City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

NRCS (SSURGO) Soils

- Hydric
- Partially Hydric*
- Water
- Not Hydric



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Feet

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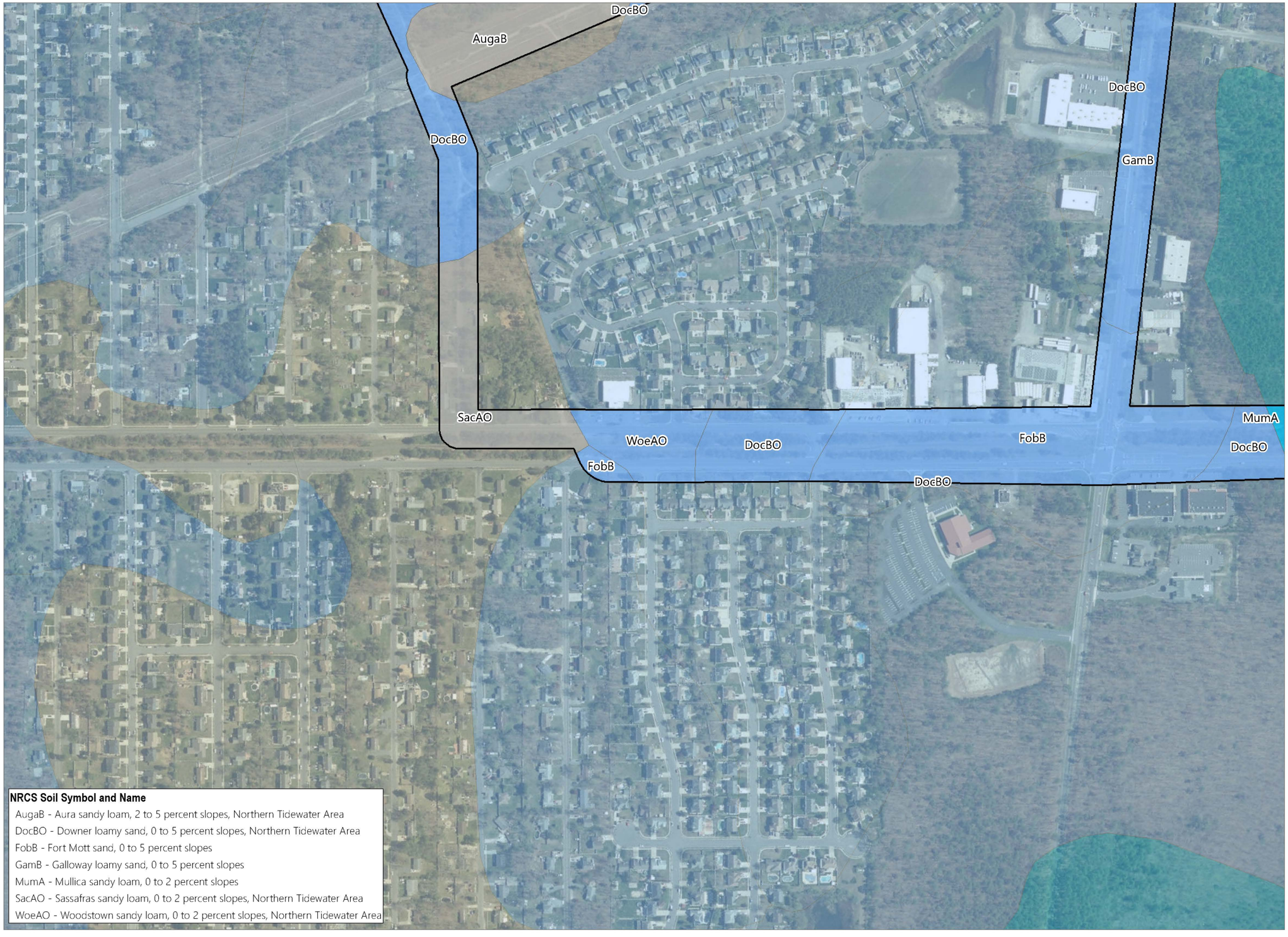
ATLANTIC SHORES offshore wind

EDR



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GamB - Galloway loamy sand, 0 to 5 percent slopes
MumA - Mullica sandy loam, 0 to 2 percent slopes
SacAO - Sassafras sandy loam, 0 to 2 percent slopes, Northern Tidewater Area
WoeAO - Woodstown sandy loam, 0 to 2 percent slopes, Northern Tidewater Area

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

NRCS (SSURGO) Soils

Hydric

Partially Hydric*

Water

Not Hydric

0 100 200 400

Feet

Prepared November 22, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

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ATLANTIC SHORES offshore wind

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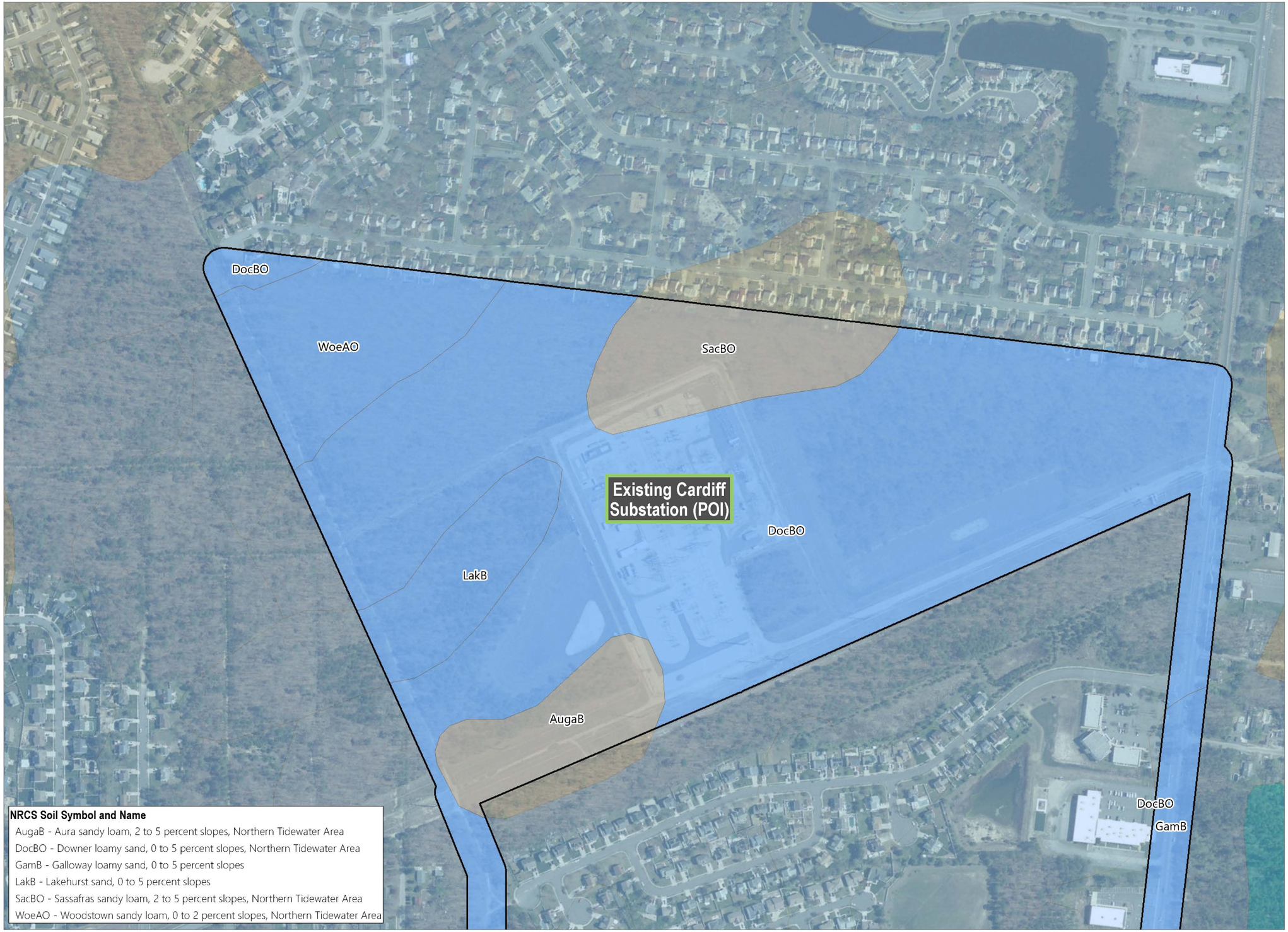
Figure 2. Soils Map



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DocBO - Downer loamy sand, 0 to 5 percent slopes, Northern Tidewater Area
GamB - Galloway loamy sand, 0 to 5 percent slopes
LakB - Lakehurst sand, 0 to 5 percent slopes
SacBO - Sassafras sandy loam, 2 to 5 percent slopes, Northern Tidewater Area
WoeAO - Woodstown sandy loam, 0 to 2 percent slopes, Northern Tidewater Area

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

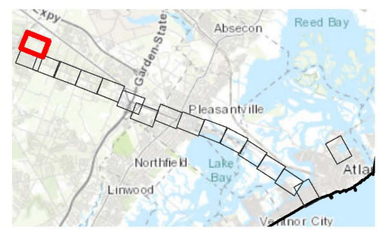
City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

NRCS (SSURGO) Soils

- Hydric
- Partially Hydric*
- Water
- Not Hydric



0 100 200 400

Feet

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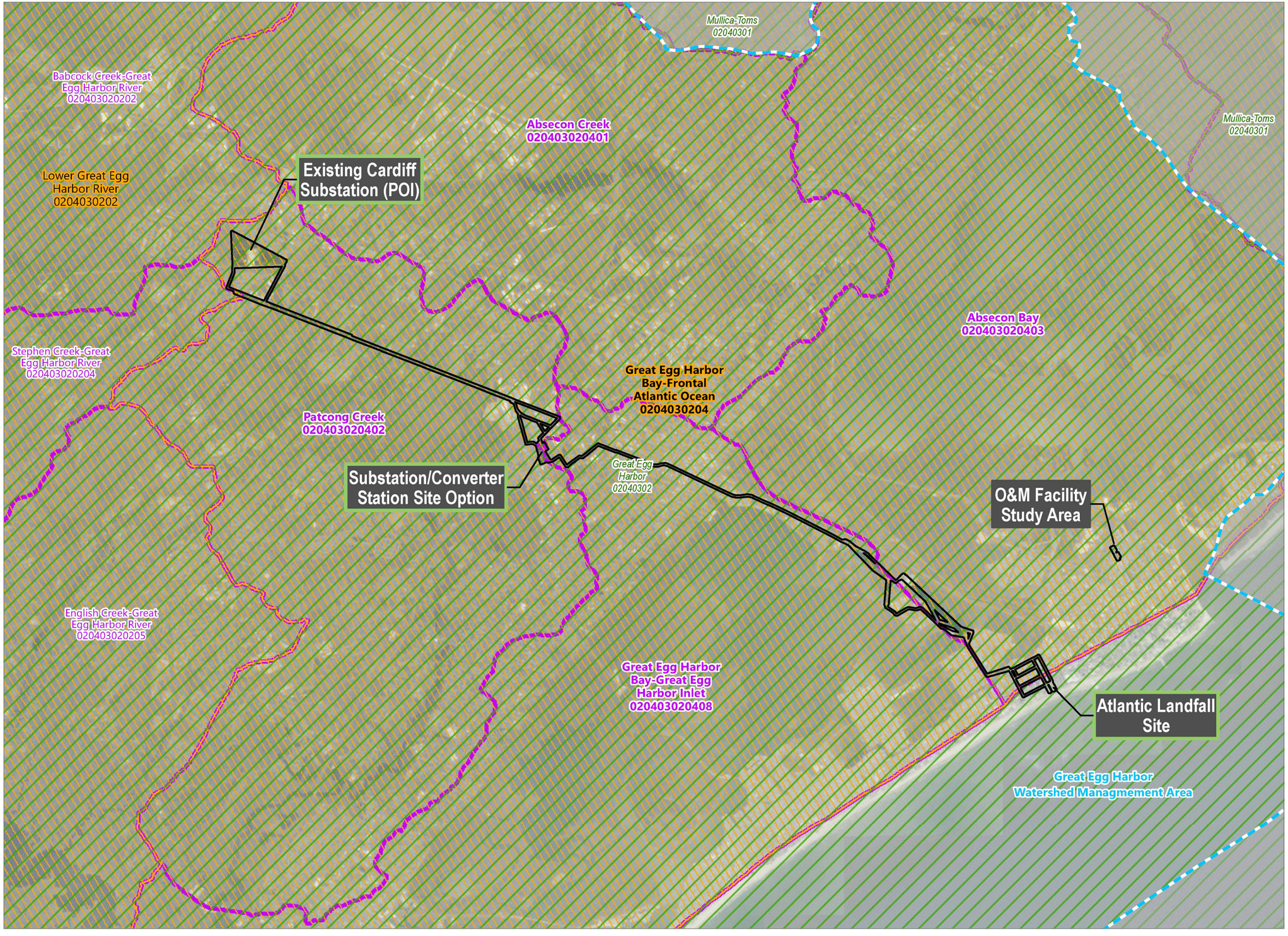
ATLANTIC SHORES offshore wind

EDR

Figure 3

Watershed Management Areas and Hydrologic Units

Figure 3. Watershed Management Areas and Hydrologic Units



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Great Egg Harbor Watershed Management Area
8- Digit Watershed
10-Digit Watershed
12-Digit Watershed
Study Area

0 2,500 5,000 10,000
Feet

Prepared December 12, 2023
Basemap: NJ Office of GIS 2020 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Figure 4

NJDEP/NWI-Mapped Wetlands and Streams

Figure 4. NJDEP/NWI Mapped Wetlands and Streams

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Stream
NJDEP Wetland
NWI Wetland
Study Area

0 250 500 1,000
Feet

Prepared December 12, 2023
Basemap: NJ Office of GIS 2020 Natural Color Imagery

ATLANTIC SHORES offshore wind

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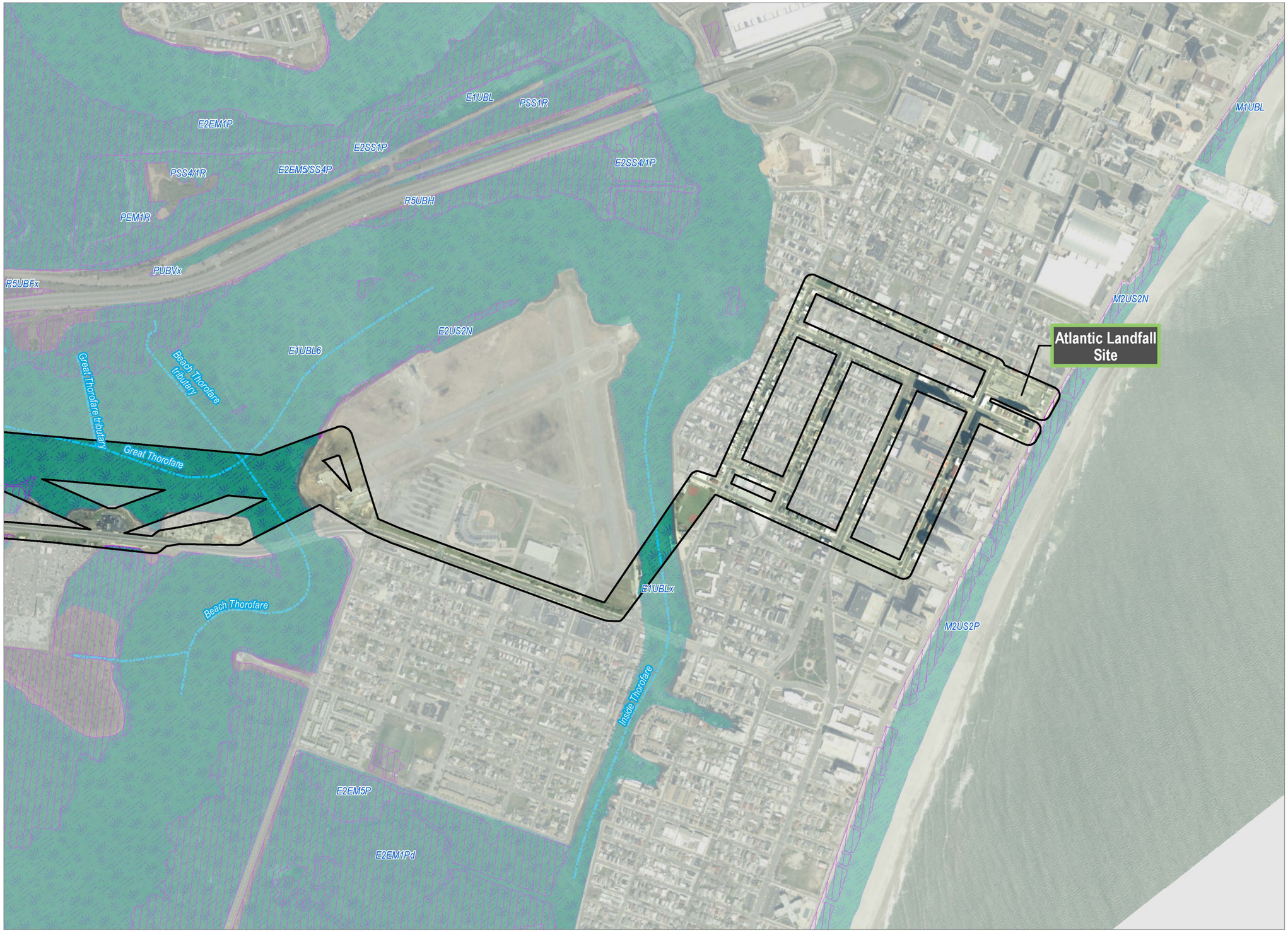
Figure 4. NJDEP/NWI Mapped Wetlands and Streams

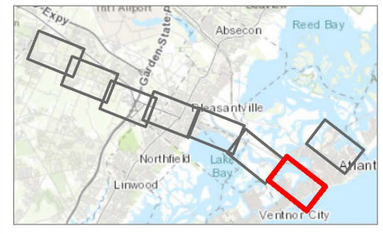


Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream
- NJDEP Wetland
- NWI Wetland
- Study Area



0 250 500 1,000

Feet

Prepared November 22, 2023

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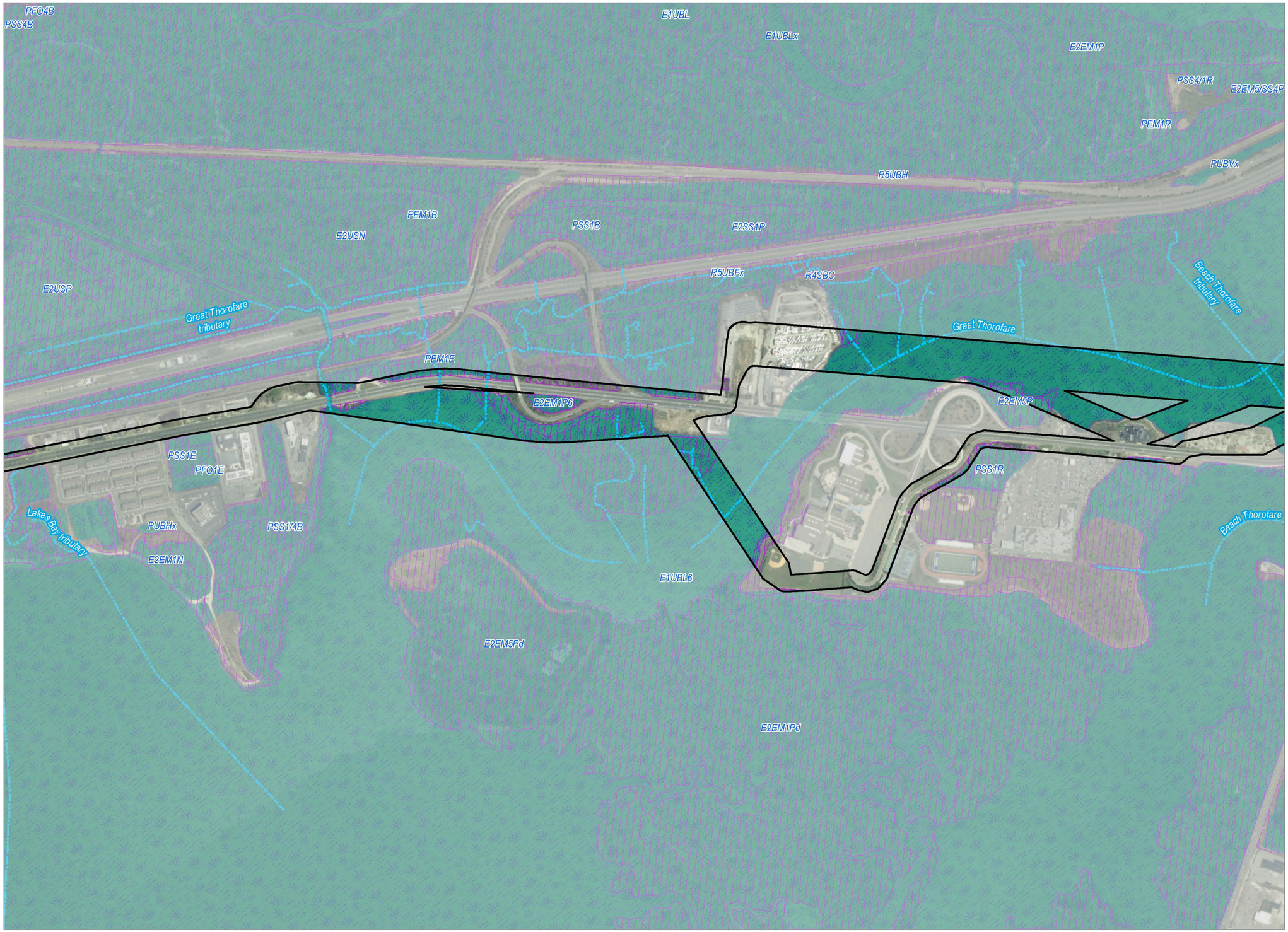
ATLANTIC SHORES offshore wind

EDR

Figure 4. NJDEP/NWI Mapped Wetlands and Streams

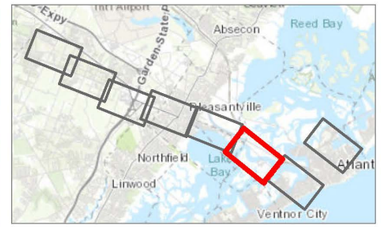


Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Stream
NJDEP Wetland
NWI Wetland
Study Area



0 250 500 1,000
Feet

Prepared November 22, 2023
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ATLANTIC SHORES offshore wind

EDR

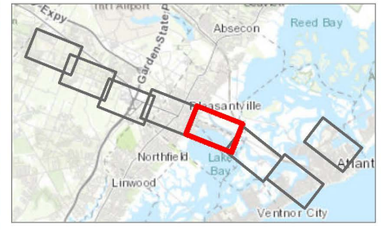
Figure 4. NJDEP/NWI Mapped Wetlands and Streams

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream
- NJDEP Wetland
- NWI Wetland
- Study Area



0 250 500 1,000

Feet

Prepared November 22, 2023

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ATLANTIC SHORES offshore wind

EDR

Figure 4. NJDEP/NWI Mapped Wetlands and Streams

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream
- NJDEP Wetland
- NWI Wetland
- Study Area

0 250 500 1,000

Feet

Prepared November 22, 2023

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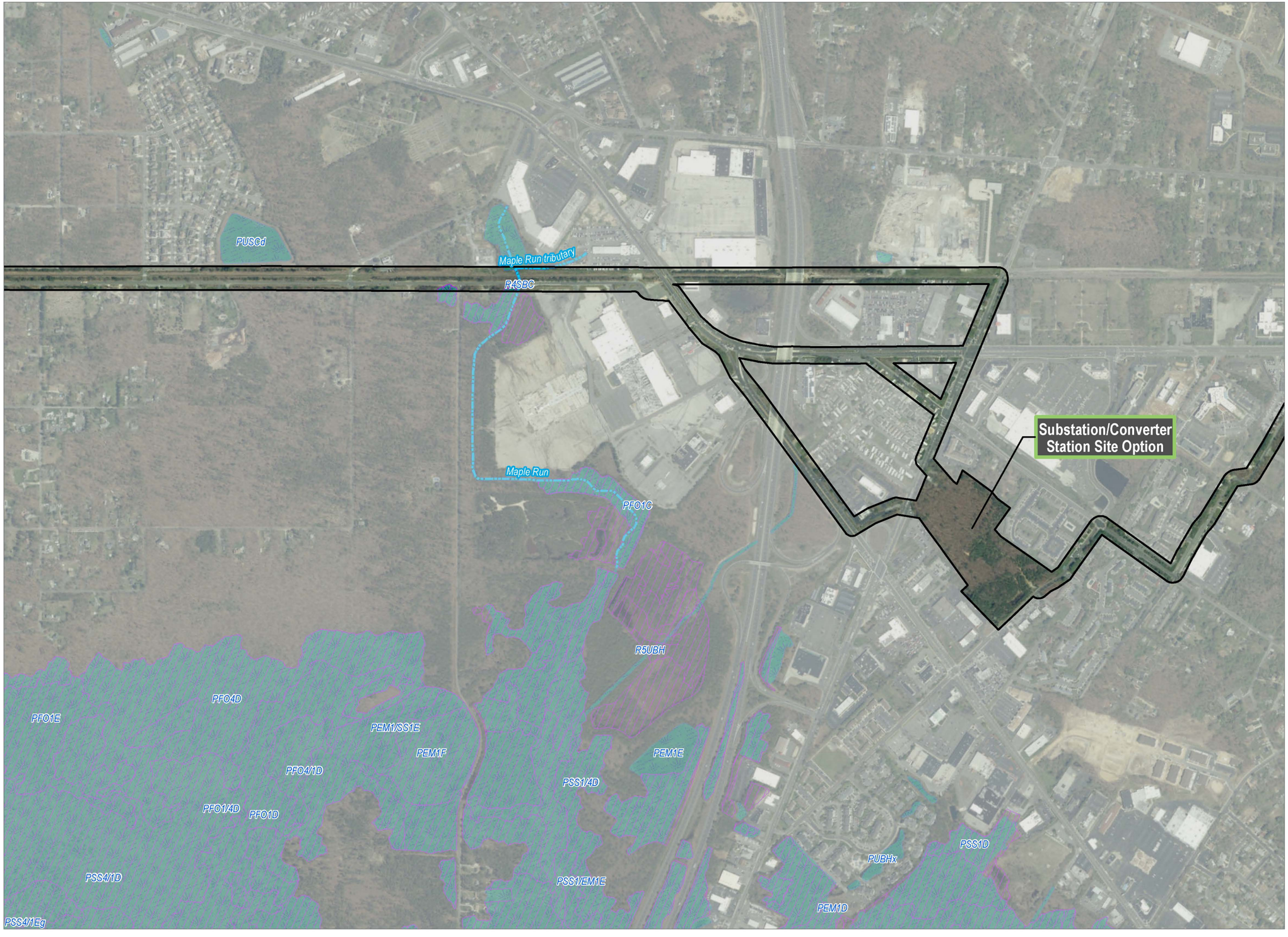
ATLANTIC SHORES offshore wind

EDR

Figure 4. NJDEP/NWI Mapped Wetlands and Streams

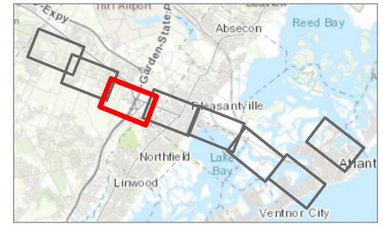


Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream
- NJDEP Wetland
- NWI Wetland
- Study Area



0 250 500 1,000

Feet

Prepared November 22, 2023

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ATLANTIC SHORES offshore wind

EDR

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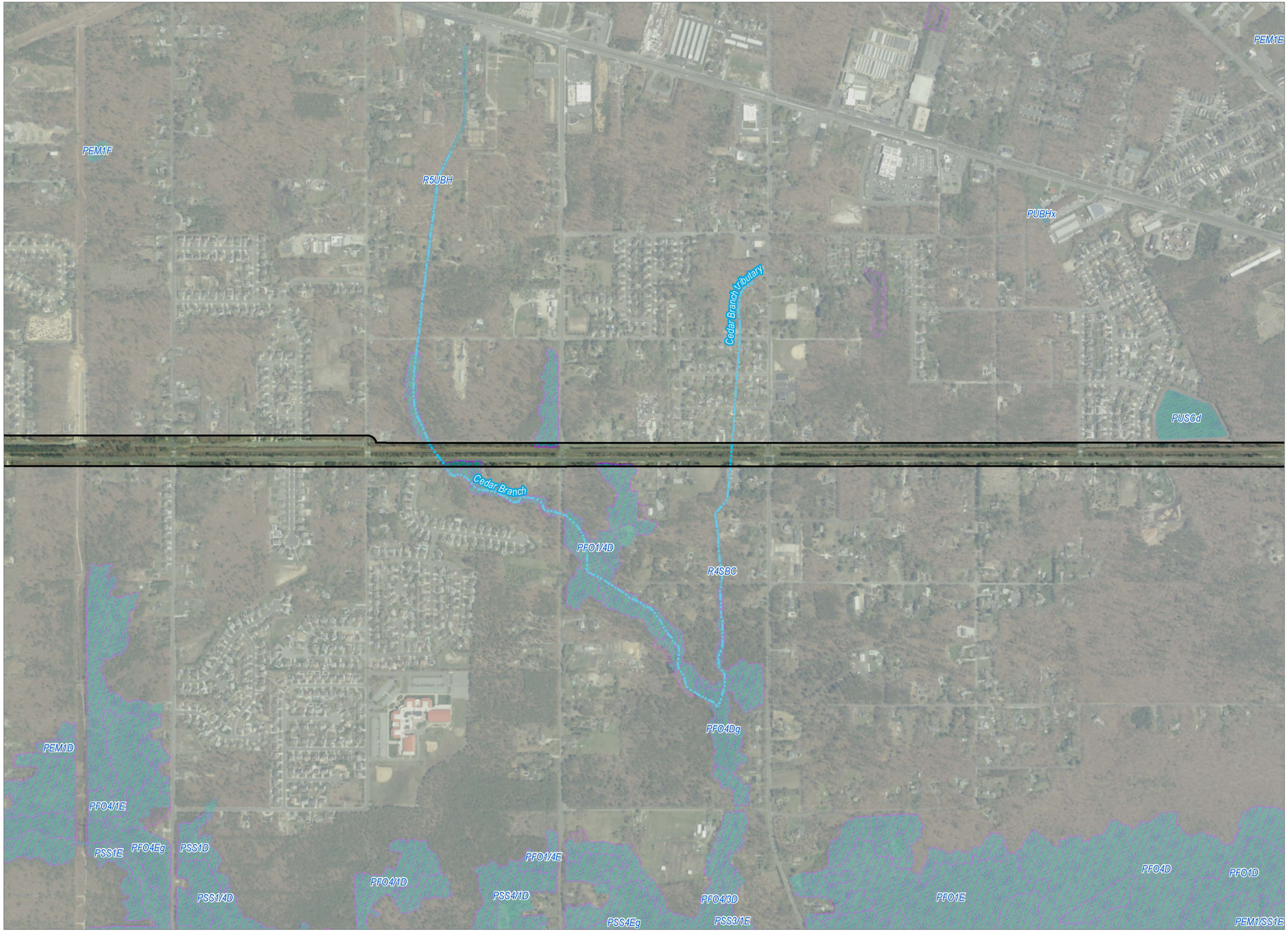
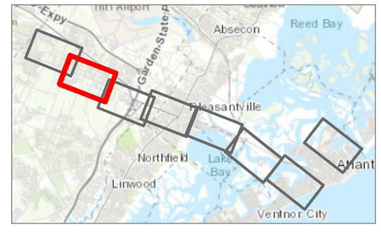


Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream
- NJDEP Wetland
- NWI Wetland
- Study Area



0 250 500 1,000

Feet

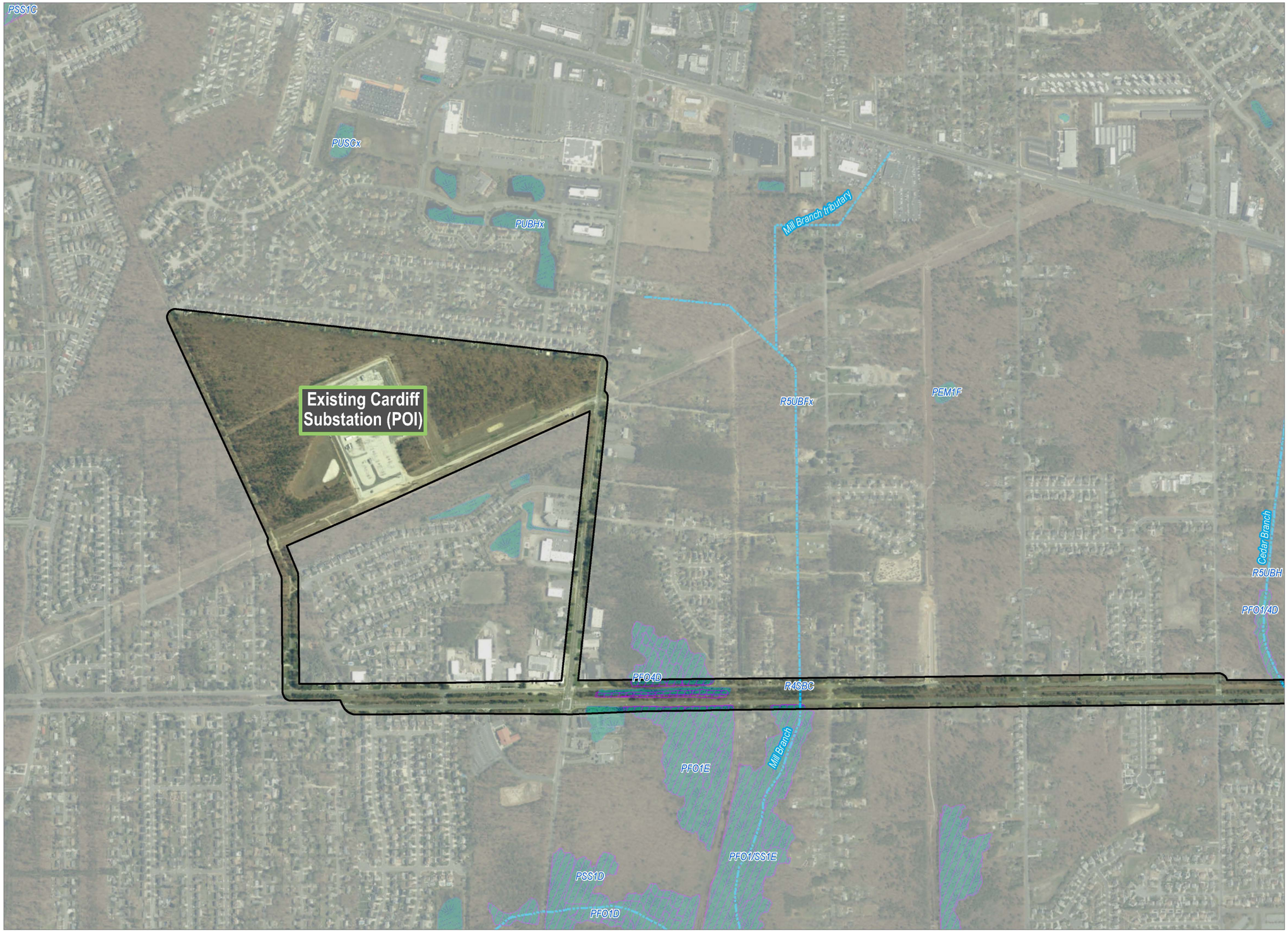
Prepared November 22, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Figure 4. NJDEP/NWI Mapped Wetlands and Streams



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream
- NJDEP Wetland
- NWI Wetland
- Study Area

0 250 500 1,000

Feet

Prepared November 22, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Figure 5

FEMA 1% Chance Annual Floodplain

Figure 5. FEMA 1% Chance Annual Floodplain

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

FEMA Floodplain (1% Annual Chance of Flood)

Study Area

0 1,500 3,000 6,000

Feet

Prepared December 12, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

ATLANTIC SHORES offshore wind

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Figure 6

Land Use/Land Cover

Figure 6. Land Use/Land Cover

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

0 250 500 1,000

Feet

Prepared December 12, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Figure 6. Land Use/Land Cover

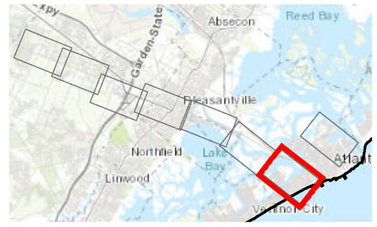
Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

- AIRPORT FACILITIES
- BEACHES
- COMMERCIAL/SERVICES
- DISTURBED WETLANDS (MODIFIED)
- MAJOR ROADWAY
- MIXED URBAN OR BUILT-UP LAND
- OTHER URBAN OR BUILT-UP LAND
- RECREATIONAL LAND
- RESIDENTIAL, HIGH DENSITY OR MULTIPLE DWELLING
- SALINE MARSH (LOW MARSH)
- STADIUM, THEATERS, CULTURAL CENTERS AND ZOOS
- TIDAL RIVERS, INLAND BAYS, AND OTHER TIDAL WATERS
- TRANSITIONAL AREAS
- TRANSPORTATION/COMMUNICATION/UTILITIES
- VEGETATED DUNE COMMUNITIES



0 250 500 1,000

Feet

Prepared December 8, 2023

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ATLANTIC SHORES offshore wind

EDR

Figure 6. Land Use/Land Cover

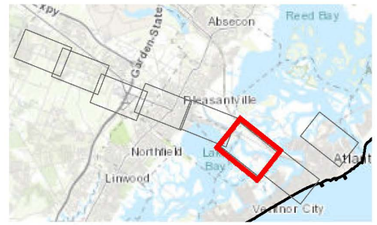
Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

- ATHLETIC FIELDS (SCHOOLS)
- BRIDGE OVER WATER
- COMMERCIAL/SERVICES
- CONIFEROUS BRUSH/SHRUBLAND
- CONIFEROUS SCRUB/SHRUB WETLANDS
- DECIDUOUS BRUSH/SHRUBLAND
- DISTURBED WETLANDS (MODIFIED)
- HERBACEOUS WETLANDS
- MAJOR ROADWAY
- MANAGED WETLAND IN BUILT-UP MAINTAINED REC AREA
- MIXED DECIDUOUS/CONIFEROUS BRUSH/SHRUBLAND
- MIXED SCRUB/SHRUB WETLANDS (CONIFEROUS DOM.)
- MIXED SCRUB/SHRUB WETLANDS (DECIDUOUS DOM.)
- OTHER URBAN OR BUILT-UP LAND
- PHRAGMITES DOMINATE COASTAL WETLANDS
- PHRAGMITES DOMINATE INTERIOR WETLANDS
- RAILROADS
- RESIDENTIAL, HIGH DENSITY OR MULTIPLE DWELLING
- SALINE MARSH (HIGH MARSH)
- SALINE MARSH (LOW MARSH)
- STORMWATER BASIN
- TIDAL RIVERS, INLAND BAYS, AND OTHER TIDAL WATERS
- TRANSPORTATION/COMMUNICATION/UTILITIES



0 250 500 1,000

Feet

Prepared December 8, 2023

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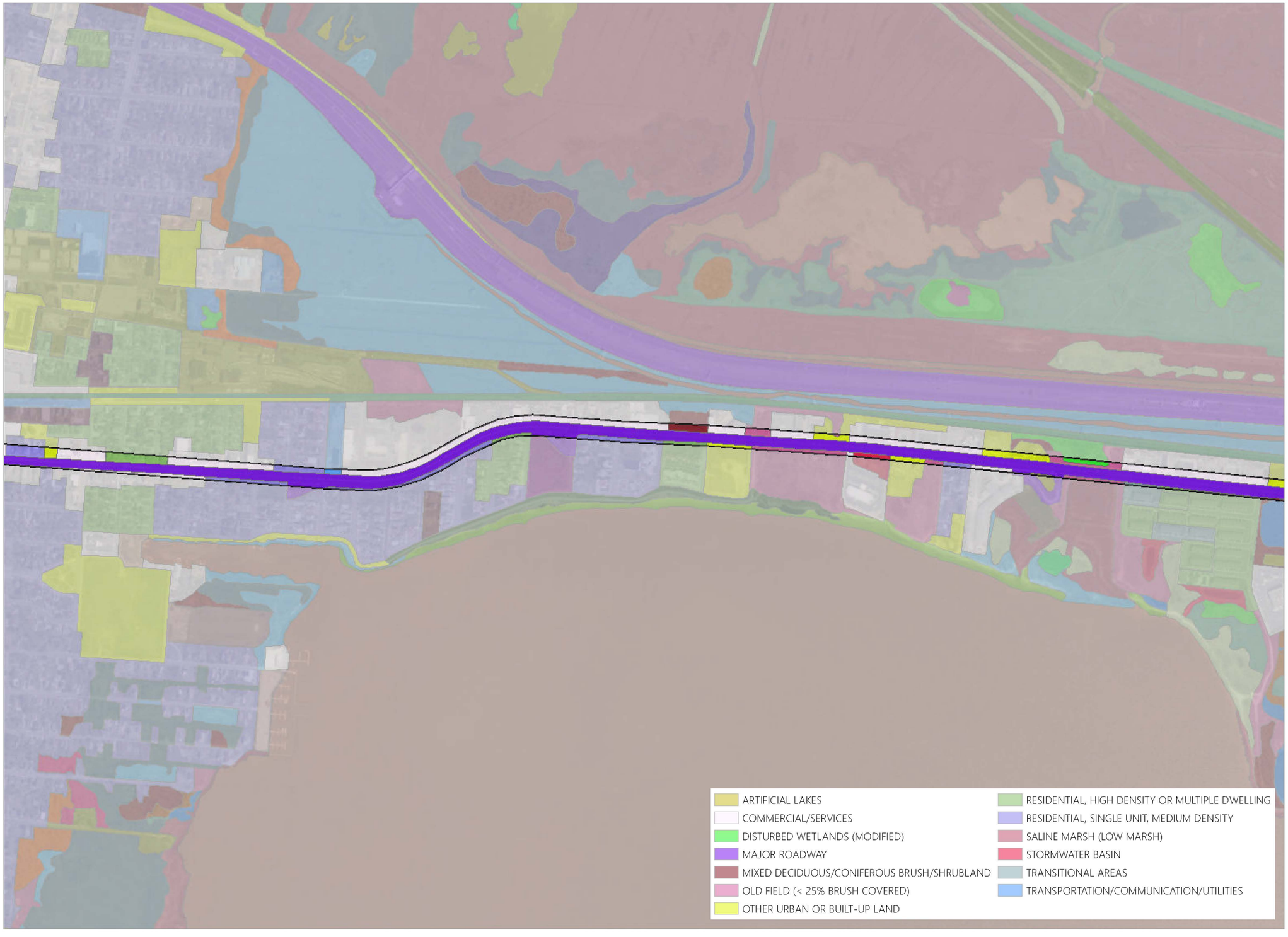
ATLANTIC SHORES offshore wind

EDR

Figure 6. Land Use/Land Cover



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

0 250 500 1,000

Feet

Prepared December 8, 2023

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ATLANTIC SHORES offshore wind

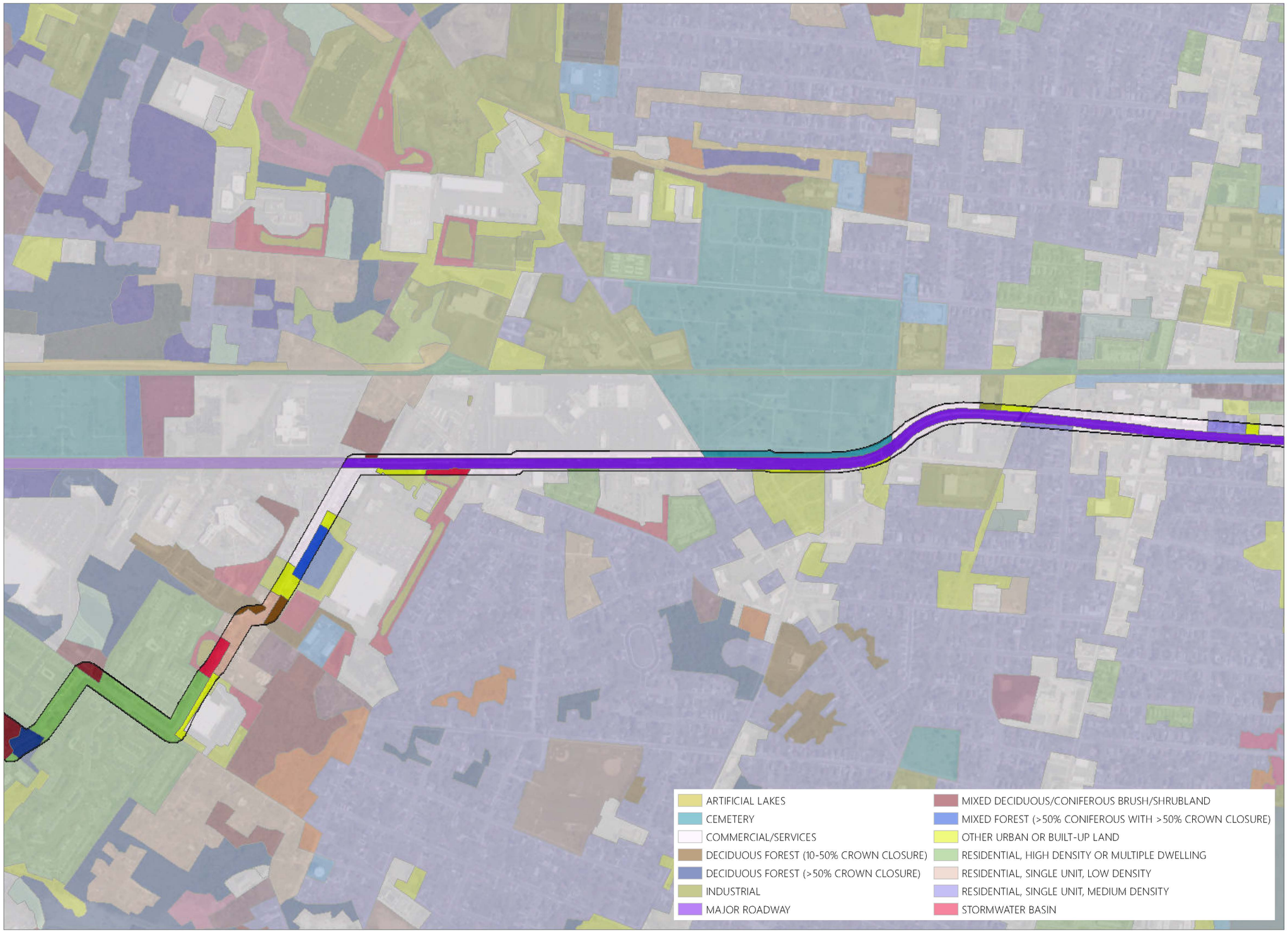
EDR

Figure 6. Land Use/Land Cover

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report



Study Area

0 250 500 1,000

Feet

Prepared December 8, 2023

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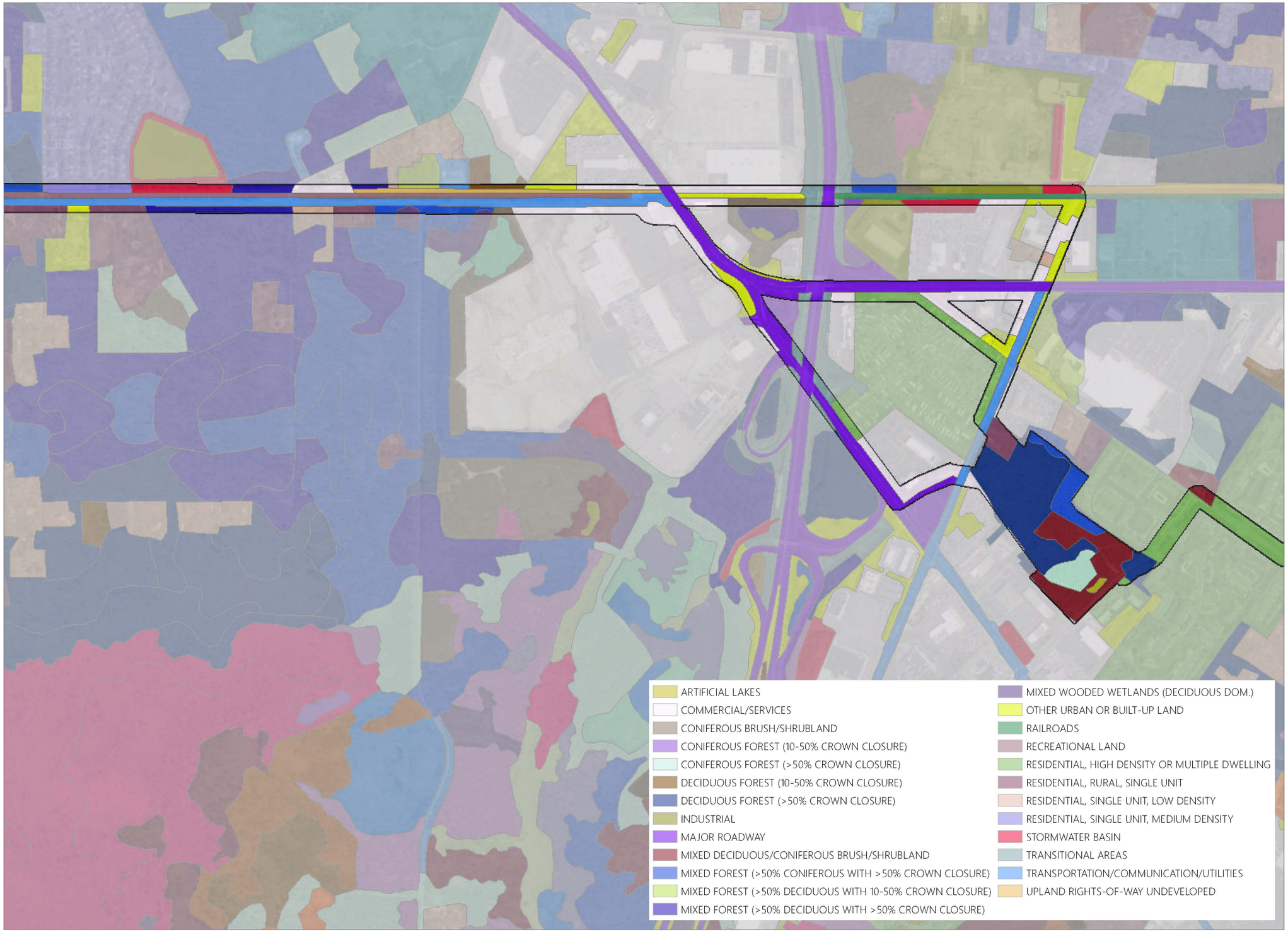
ATLANTIC SHORES offshore wind

EDR

Figure 6. Land Use/Land Cover

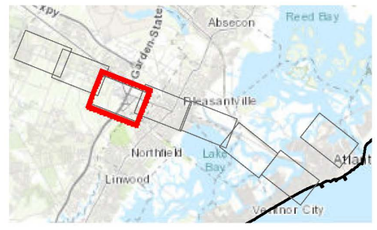


Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area



0 250 500 1,000

Feet

Prepared December 8, 2023

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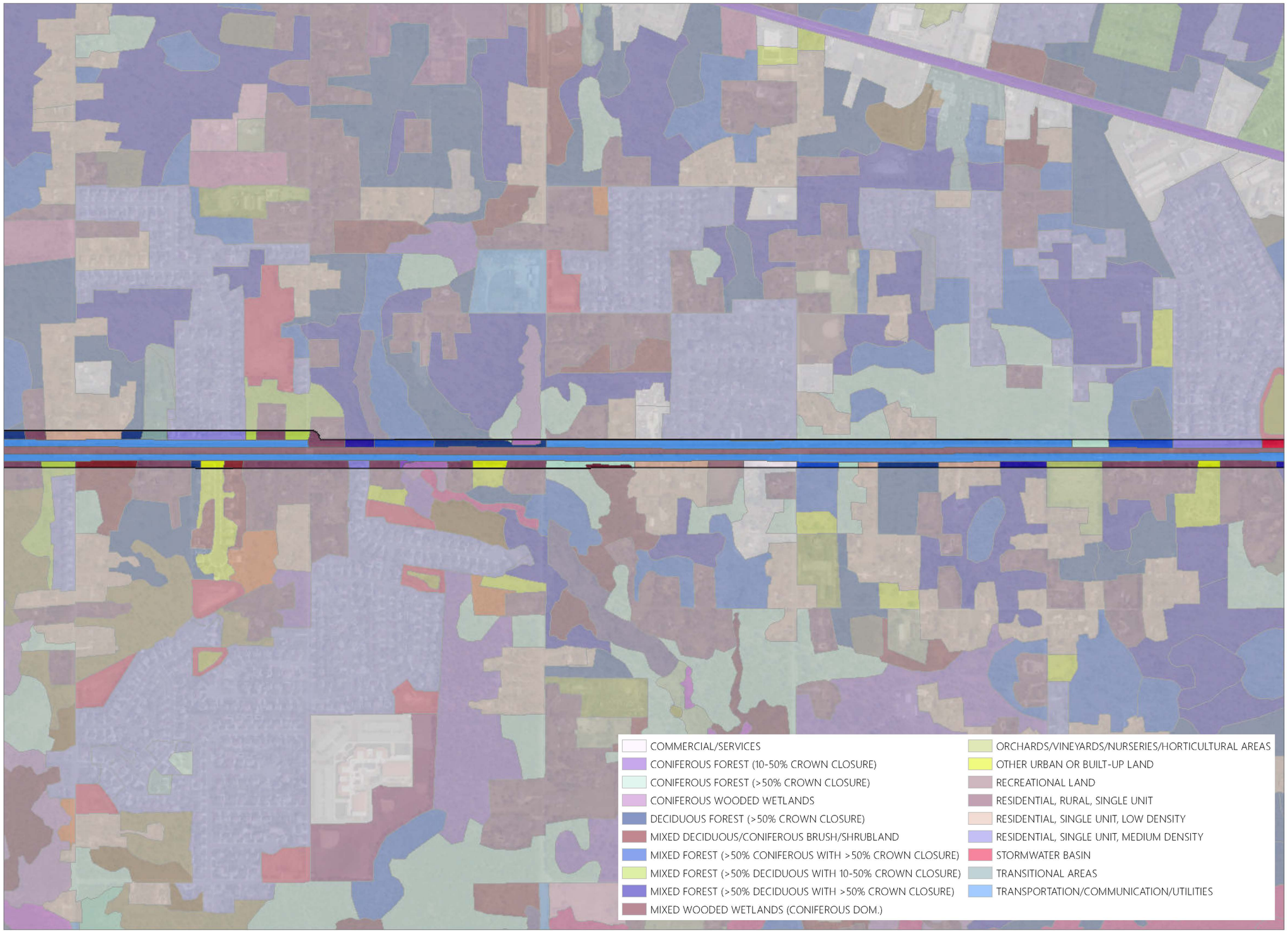
ATLANTIC SHORES offshore wind

EDR

Figure 6. Land Use/Land Cover



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area

0 250 500 1,000

Feet

Prepared December 8, 2023

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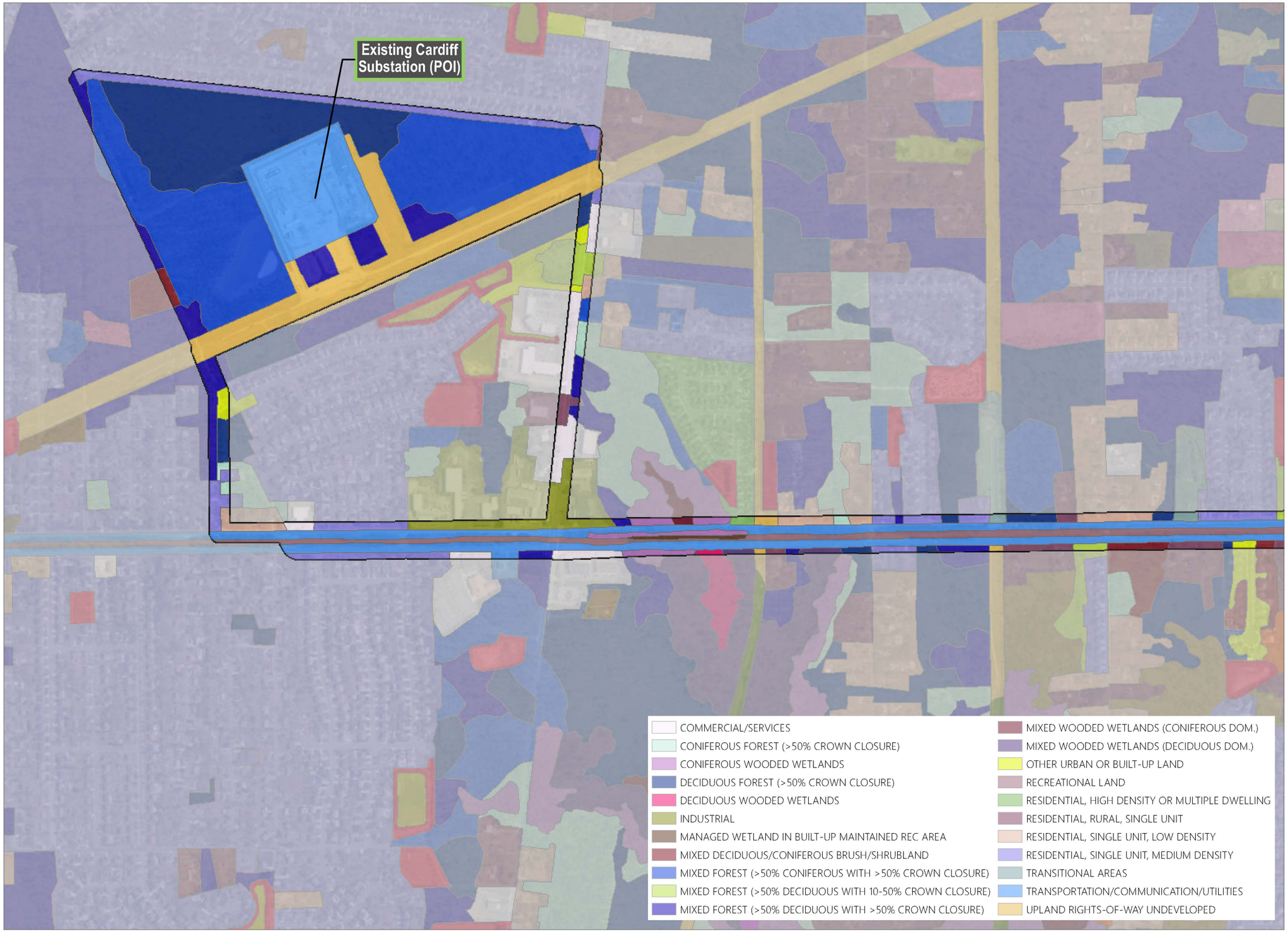
ATLANTIC SHORES offshore wind

EDR

Figure 6. Land Use/Land Cover

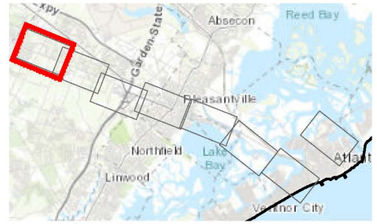


Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

Study Area



0 250 500 1,000

Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2020 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

APPENDIX B

Routine Wetland Determination Data Sheets and Stream Inventory Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Atlantic City, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: WL1-1U
Investigator(s): TCAL | Section, Township, Range: Atlantic City, Atlantic County, NJ
Landform (hillslope, terrace, etc): Depressional area | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR or MLRA): LRR S | Lat: 39.365812 | Long: -74.47127717 | Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WL1-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Microstegium vimineum* / Japanese stilt grass	95	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		285 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WL1-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Coarse Sand	
3-6	2.5Y 4/3	100					Coarse Sand	
6-18	10YR 6/8							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff City/County: Atlantic City, Atlantic County, NJ Sampling Date: 02/08/2023
Applicant/Owner: ASOW State: New Jersey Sampling Point: WL1-1W
Investigator(s): TCAL Section, Township, Range: Atlantic City, Atlantic County, NJ
Landform (hillslope, terrace, etc): Bowl shaped depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S Lat: 39.365817 Long: -74.471474 Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: WL1-TC-1W

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 4
Water Table Present? Yes X No ____ Depth (inches): 3
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WL1-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Lyonia ligustrina* / Maleberry	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Microstegium vimineum* / Japanese stilt grass	75	Yes	FAC
2. *Phragmites australis* / Common reed	15	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		290 (B)

Prevalence Index = B/A = 2.76

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WL1-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Coarse Sand	
3-8	2.5Y 4/2	100					Coarse Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Standing water and a high water table prevents soil from being extracted after 8" below grade.

Data Form

Routine Onsite Determination Form

Field Investigators: Heather Berry Kyle Crawford Date: 9/14/2021

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: Wetland 1A – 1U

Note: if a more detailed site description is necessary, provide detail here: Upland between roadway and wetland, sparsely vegetated area

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	High Tide Bush (Iva frutescens)	70	FACW	Shrub
2.	Salt Marsh Goldenrod (Solidago sempervirens)	2	FACW	Herbaceous
3.	Poison Ivy (Toxicodendron radicans)	30	FAC	Herbaceous
4.	Common Reed (Phragmites australis)	2	FACW	Herbaceous
5.	Virginia Creeper (Parthenocissus quinquefolia)	5	FACU	Woody Vine

Percent of Dominant Species that are OBL, FACW, and/or FAC: 66.7

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Entisols Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-4" 7.5YR 5/8, 4-8" 2.4Y 7/4 clay sand

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Heather Berry Klye Crawford Date: 9/14/2021

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: Wetland 1A – 1W

Note: if a more detailed site description is necessary, provide detail here: Tidal Wetland

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Glasswort (Salicornia depressa)	5	OBL	Herbaceous
2.	Smooth Cordgrass (Spartina alterniflora)	99	OBL	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Entisols Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☒ No ☐

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-8" 10YR 3/1 sandy rocky material with organic matter

Mottle Colors: N/A

Other hydric soil indicators: Saturated soils

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 1”

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0”

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL2 -1W

Note: if a more detailed site description is necessary, provide detail here: PEM tidal wetland
Previously: Wetland 3 – 1W

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Jesuit's bark (Iva frutescens)	15	FACW	Shrub
2.	Saltmeadow Cordgrass (Spartina patens)	20	FACW	Herbaceous
3.	Smooth Cordgrass (Spartina alterniflora)	25	OBL	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Entisols Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☒ No ☐

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: Unable to access soils, perennial stream present

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: Soils too saturated/mucky to access sample

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 2"+

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0"

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL2 – 2U

Note: if a more detailed site description is necessary, provide detail here: Upland consisting of gravel roadbed that runs along wetland boundary
Previously: Wetland 3 – 2U

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☒ No☐ (If yes, explain) gravel roadbed, no soil sample

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Eastern Redcedar (Juniperus virginiana)	5	FACU	Tree
2.	Jesuit's bark (Iva frutescens)	5	FACW	Shrub
3.	Common Reed (Phragmities australis)	25	FACW	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 50%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale:

SOILS

Series/Phase: Entisols Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: Gravel Roadbed

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL2 – 2W

Note: if a more detailed site description is necessary, provide detail here: Tidal Wetland
Previously: Wetland 3 – 2W

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Eastern Red Cedar (Juniperus virginiana)	30	FACU	Tree
2.	Jesuit's bark (Iva frutescens)	40	FACW	Shrub
3.	Glasswort (Salicornia depressa)	5	OBL	Herbaceous
4.	Smooth cordgrass (Spartina patens)	90	OBL	Herbaceous
5.	Grass sp.	40	NA	Herbaceous
6.	Common Reed (Phragmities austalis)	5	FACW	Herbaceous
7.	Sea Lavender (Limonium carolinianum)	2	OBL	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 60%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Entisols Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☒ No ☐

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-5" 10YR 3/2, 5-8" 10YR 4/1, 8-18 10YR 2/1; heavy organic matter, sandy some small rocks

Mottle Colors: N/A

Other hydric soil indicators: Depletions present

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: hydrogen sulfide smell

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL3 – 1U

Note: if a more detailed site description is necessary, provide detail here: Previously: Wetland 4 – 1U

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Spotted Knapweed (Centaurea stoebe)	10	NA	Herbaceous
2.	Japanese clover (Kummerowia striata)	30	FACU	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale:

SOILS

Series/Phase: Spodosols Subgroup: Aquods

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-10" 10YR 4/1. 10-18" 5YR 5/8

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL3 – 1W

Note: if a more detailed site description is necessary, provide detail here: PEM
Previously: Wetland 4 – 1W

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Reed Canary Grass (Phalaris arundinacea)	60	OBL	Herbaceous
2.	Broadleaf Cattail (Typha latifolia)	20	OBL	Herbaceous
3.	Marsh Mallow (Althaea officinalis)	15	FACW	Herbaceous
4.	Common Rush (Juncus effuses)	10	OBL	Herbaceous
5.	Shallow sedge (Carex lurida)	10	OBL	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Spodosols Subgroup: Aquods

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-18" 10YR 2/1 (85%)

Mottle Colors: 5YR 4/6 (15%)

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: geomorphic position, water stained leaves

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL 4 -1W

Note: if a more detailed site description is necessary, provide detail here: Gully between forest line and pedestrian bike path
Previously: Wetland 5 – 1W

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Japanese Stiltgrass (Microstegium vimineum)	5	FAC	Herbaceous
2.	Slender Path Rush (Juncus tenuis)	10	FAC	Herbaceous
3.	Hairgrass (Deschampsia cespitosa)	75	FACW	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 66.7

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Ultisols Subgroup: Udults

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☒ No ☐

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-5" 5YR 2/1, 5-10" 10YR 2/1 organic loam

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: low lying area

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL5 – 1U

Note: if a more detailed site description is necessary, provide detail here: Hillslope between walking path and delineated wetland
Previously: Wetland 6 – 1U

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Sassafras (Sassafras albidum)	15	FACU	Shrub/Sapling
2.	Grey Birch (Betula populifolia)	5	FACW	Shrub/Sapling
3.	Black Oak (Quercus velutina)	10	Non-Wetland (Pinelands)	Shrub/Sapling
4.	Cherry (Prunus serotina)	15	FACU	Shrub/Sapling
5.	Sweetbay Magnolia (Magnolia virginiana)	10	FACW	Shrub/Sapling
6.	Pepper Bush (Clethra alnifolia)	10	FACW	Shrub/Sapling
7.	Spotted Knapweed (Centaurea stoebe)	10	NA	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 28.6

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale:

SOILS

Series/Phase: Ultisols Subgroup: Udults

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-8" 10YR 3/3, 8-14" 10YR 4/6 sandy

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL5 – 1W

Note: if a more detailed site description is necessary, provide detail here: Gully between forest line and pedestrian bike path
Previously: Wetland 6 – 1W

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Maple (Acer rubrum)	40	FAC	Tree
2.	Cherry (Prunus serotina)	2	FACU	Tree
3.	Spicebush (Lindera benzoin)	10	FACW	Shrub/Sapling
4.	Red Maple (Acer rubrum)	15	FAC	Shrub/Sapling
5.	Sassafras (Sassafras albidum)	1	FACU	Shrub/Sapling
6.	White Oak (Quercus alba)	1	FACU	Shrub/Sapling
7.	Greenbriar (Smilax rotundifolia)	20	FACW	Wood Vine
8.	Moss	40	NA	Herbaceous
9.	Japanese Stiltgrass (Microstegium vimineum)	5	FAC	Herbaceous
10.	Slender Path Rush (Juncus tenuis)	10	FAC	Herbaceous
11.	Hairgrass (Deschampsia cespitosa)	15	FACW	Herbaceous
12.	Sundew (Drosera rotundifolia)	2	OBL	Herbaceous
13.	Bladderwort (Utricularia foliosa)	5	OBL	Herbaceous
14.	Showy Goldenrod (Solidago speciose)	5	NA	Herbaceous
15.	Cinnamon fern (Osmunda cinnamomea)	5	FACW	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 66.7

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Ultisols Subgroup: Udults

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☒ No ☐

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-5" 5YR 2/1, 5-10" 10YR 2/1 organic loam

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 0.5"

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: low lying area with sparsely vegetated habitat

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL 5 – 2W

Note: if a more detailed site description is necessary, provide detail here: PFO
Previously: Wetland 6 – 2W

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Maple (Acer rubrum)	95	FAC	Tree
2.	Black Gum (Nyssa sylvatica)	10	FAC	Tree
3.	Blueberry (Vaccinium corymbosum)	10	FACW	Shrub/Sapling
4.	Black Gum (Nyssa sylvatica)	5	FAC	Shrub/Sapling
5.	Holly (Ilex opaca)	2	FAC	Shrub/Sapling
6.	Moss	20	NA	Herbaceous
7.	Royal Fern (Osmunda regalis)	1	OBL	Herbaceous
8.	Grass sp.	10	NA	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Inceptisols Subgroup: Aquepts

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☒ No ☐

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-5" 5yr 2/1, 5-12" 10yr 2/1 organic loam

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 5"

List of other field evidence of surface inundation or soil saturation: moss trim lines, buttressed and eroded tree roots, wet leaves

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL6 – 1U

Note: if a more detailed site description is necessary, provide detail here: Hillside between wetland and bike path Previously: Wetland 7 – 1U

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Pitch Pine (Pinus rigida)	60	FAC	Tree
2.	Red Maple (Acer rubrum)	40	FAC	Tree
3.	Black Gum (Nyssa sylvatica)	40	FACW	Tree
4.	Pepperbush (Clethra alnifolia)	5	FACW	Shrub/Sapling
5.	Eastern Red Cedar (Juniperus virginiana)	2	FACU	Shrub/Sapling
6.	Blueberry (Vaccinium angustifolium)	2	FACU	Shrub/Sapling
7.	Greenbriar (Smilax rotrundifolia)	5	FACW	Woody Vine

Percent of Dominant Species that are OBL, FACW, and/or FAC: 57.1

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Inceptisols Subgroup: Aquepts

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-2" 5yr 3/2, 2-6" 10yr 3/1, 6-14" 2.5y 5/4 sandy

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Matt Spadoni, Jacqueline McMillen Date: 6/23/2020

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: WL6 – 1W

Note: if a more detailed site description is necessary, provide detail here: PFO – low drainage
Previously: Wetland 7 – 1W

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain)

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Maple (Acer rubrum)	85	FAC	Tree
2.	Pitch Pine (Pinus rigida)	5	FACU	Tree
3.	Black Gum (Nyssa sylvatica)	15	FAC	Sapling/Shrub
4.	Red Maple (Acer rubrum)	10	FAC	Sapling/Shrub
5.	Black Gum (Nyssa sylvatica)	5	FAC	Herbaceous
6.	Cinnamon Fern (Osmunda cinnamomea)	5	FACW	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Inceptisols Subgroup: Aquepts

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☒ No ☐

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-3" 10yr 3/2, 3-4" 2.5y 6/3 (clay), 4-12" 10yr 2/1 saturated,sand masked with OM

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: water stained leaves, geomorphic position

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/20/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W001-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of a man-made berm with materials excavated from the stormwater basin.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☒ No☐ (If yes, explain) Soils were previously excavated and piled to create this upland berm

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VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Pitch Pine (Pinus rigida)	60	FACU	Tree
2.	Blackjack Oak (Quercus marilandica)	15	FACU	Tree
3.	Wintergreen (Gaultheria procumbens)	10	FACU	Herb
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: All species present are FACU.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-2" 10YR 2/2 (100%); 2-6" 10YR 5/8 (100%) Mottle Colors: N/A

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: **This is a characteristic upland soil without any colors or hydric indicators.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: None

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale: No primary or secondary wetland hydrology indicators exist.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/20/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W001-1W

Note: if a more detailed site description is necessary, provide detail here: PEM wetland.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Spikerush (Eleocharis palustris)	5	OBL	Herb
2.	Common Reed (Phragmites australis)	5	FACW	Herb
3.	Flat-top Goldentop (Euthamia graminifolia)	3	FAC	Herb
4.	Species Name	STATUS	Stratum	
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: All species present are FAC, FACW, or OBL.

SOILS

Series/Phase: AugaA: Aura sandy loam, 0 to 2 percent slopes Subgroup: Aura

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-1" 2.5Y 5/4 100%; 1-20" 5YR 5/8 70% Mottle Colors: 10Y 7/1 30%

Other hydric soil indicators: Click or tap here to enter text.

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: Both colors and texture qualify this soil to be hydric.

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 0.5 inch

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0 inches

List of other field evidence of surface inundation or soil saturation: Algal mat or crust, inundation visible on aerial imagery, water-stained leaves, oxidized rhizospheres, geomorphic position, FAC neutral test, hydrogen sulfide odor, aquatic fauna (tadpoles).

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

Data Form

Routine Onsite Determination Form

Field Investigators: SM Date: 08/11/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: W001A-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of a man-made berm with materials excavated from the stormwater basin

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☒ No☐ (If yes, explain) Soils were previously excavated

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Black Cherry (Prunus serotina)	15	FACU	Tree
2.	Catalpha (Catalpha speciosa)	5	FACU	Tree
3.	Pitch Pine (Pinus rigida)	5	FACU	Tree
4.	Yucca L.	5	STATUS	Herb
5.	Chinese wisteria (Wisteria sinensis)	20	STATUS	Tree
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: Click or tap here to enter text.

SOILS

Series/Phase: Click or tap here to enter text. Subgroup: Click or tap here to enter text.

Is the soil on the hydric soils list? Yes ☐ No ☐ Undetermined ☒

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: -8 2.5Y 4/5, 8+ 2.5Y 4/6 medium to coarse sand Mottle Colors: Click or tap here to enter text.

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: none

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: SM Date: 08/11/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: W001A-1W

Note: if a more detailed site description is necessary, provide detail here: Area consists of a man-made berm with materials excavated from the stormwater basin, can potentially act as a vernal pool early in the growing season due to unnatural clay soils. Connected to Wetlands W001 and W002 through pipes

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Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☒ No☐ (If yes, explain) Soils were previously excavated and piled to create this depression

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VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Maple (Acer rubrum)	45	FAC	Tree
2.	Species Name	% Cover	STATUS	
3.	Species Name	% Cover	STATUS	Stratum
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: dominant vegetation meets criteria for hydrophytic vegetation.

SOILS

Series/Phase: Click or tap here to enter text. Subgroup: Click or tap here to enter text.

Is the soil on the hydric soils list? Yes ☐ No ☐ Undetermined ☒

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 10YR 5/4, 6-10+ 2.5Y 5/6 sandy Clay Mottle Colors: concentrations 5Y 6/8

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **The soils have been heavily disturbed and are not natural for the area, they are problematic but show signs of holding water for long periods of time.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: water stained leaves, concave unvegetated surface, geomorphic position

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: primary and secondary wetland hydrology indicators met.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/20/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W002-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of adjacent upland forest.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Pitch Pine (Pinus rigida)	20	FACU	Tree
2.	Sassafras (Sassafras albidum)	20	FACU	Tree
3.	Sassafras (Sassafras albidum)	10	FACU	Shrub/Sapling
4.	Lowbush Blueberry (Vaccinium angustifolium)	40	FACU	Herb
5.	Bracken Fern (Pteridium aquilinum)	20	FACU	Herb
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: All species present are FACU.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-2" 7.5YR 4/3 (100%); 2-4" 10YR 5/1 (100%); 4-6" 10YR 5/6 (100%) Mottle Colors: N/A

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: **This is a characteristic upland soil without any colors or hydric indicators.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: None

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale: No primary or secondary wetland hydrology indicators exist.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/20/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W002-1W

Note: if a more detailed site description is necessary, provide detail here: PEM wetland that was not sampled due to fence. Stormwater feature has been managed and fenced for protection.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Narrowleaf Cattail (Typha angustifolia)	100	OBL	Herb
2.	Species Name	% Cover	STATUS	Stratum
3.	Species Name	% Cover	STATUS	Stratum
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name		STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: All species present are OBL.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: Click or tap here to enter text. Mottle Colors: Click or tap here to enter text.

Other hydric soil indicators: Other

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **Soils not sampled due to the fence surrounding wetland feature.**

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 3" + inches

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0 inches

List of other field evidence of surface inundation or soil saturation: Inundation visible on aerial imagery, geomorphic position, FAC neutral test, hydrogen sulfide odor, aquatic fauna (tadpoles/amphibians).

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/20/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W003-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of mowed roadside.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Fescue (Festuca rubra)	60	FACU	Herb
2.	English Plantain (Plantago lanceolata)	20	FACU	Herb
3.	Virginia Creeper (Parthenocissus quinquefolia)	20	FACU	Herb
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: All species present are FACU.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 7.5YR 3/3 (100%) Mottle Colors: N/A

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: **This is a characteristic upland soil without any colors or hydric indicators.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: None

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale: No primary or secondary wetland hydrology indicators exist.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/20/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W003-1W

Note: if a more detailed site description is necessary, provide detail here: PEM wetland that was not sampled due to fence. Stormwater feature has been managed and fenced for protection.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Narrowleaf Cattail (Typha angustifolia)	80	OBL	Herb
2.	Dark Green Bulrush (Scirpus atrovirens)	20	OBL	Herb
3.	Species Name	% Cover	STATUS	Stratum
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name		STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: All species present are OBL.

SOILS

Series/Phase: **GamB: Galloway loamy sand, 0 to 5 percent slopes** Subgroup: Galloway

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☐ Histic epidedon present? Yes ☐ No ☐

Is the soil: Mottled? Yes ☐ No ☐ Gleyed? Yes ☐ No ☐

Matrix Color: Click or tap here to enter text. Mottle Colors: Click or tap here to enter text.

Other hydric soil indicators: Other

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **Soils not sampled due to the fence surrounding wetland feature.**

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 3" + inches

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0 inches

List of other field evidence of surface inundation or soil saturation: Inundation visible on aerial imagery, geomorphic position, FAC neutral test, aquatic fauna (tadpoles/amphibians).

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W004-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of mowed roadside.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Fescue (Festuca rubra)	60	FACU	Herb
2.	English Plantain (Plantago lanceolata)	20	FACU	Herb
3.	Virginia Creeper (Parthenocissus quinquefolia)	20	FACU	Herb
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: All species present are FACU.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 7.5YR 3/3 (100%) Mottle Colors: N/A

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: **This is a characteristic upland soil without any colors or hydric indicators.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: None

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale: No primary or secondary wetland hydrology indicators exist.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W004-1W

Note: if a more detailed site description is necessary, provide detail here: Salt marsh community connected to Lakes Bay situated adjacent to US Route 322.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	High-tide Bush (Iva frutescens)	70	FACW	Shrub/Sapling
2.	Eastern Red Cedar (Juniperus virginiana)	10	FACU	Shrub/Sapling
3.	Common Reed (Phragmites australis)	60	FACW	Herb
4.	Soft Rush (Juncus effusus)	20	OBL	Herb
5.	Common Spikerush (Eleocharis palustris)	10	OBL	Herb
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 80%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: Majority of the species are FACW or OBL.

SOILS

Series/Phase: **GamB: Galloway loamy sand, 0 to 5 percent slopes** Subgroup: Galloway

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☐ Histic epidedon present? Yes ☐ No ☐

Is the soil: Mottled? Yes ☐ No ☐ Gleyed? Yes ☐ No ☐

Matrix Color: Click or tap here to enter text. Mottle Colors: Click or tap here to enter text.

Other hydric soil indicators: Other

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **Soils not sampled due to the fence surrounding wetland feature.**

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 4" + inches

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0 inches

List of other field evidence of surface inundation or soil saturation: Inundation visible on aerial imagery, geomorphic position, FAC neutral test, aquatic fauna (amphibians).

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W005/5A-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of mowed roadside.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Fescue (Festuca rubra)	60	FACU	Herb
2.	English Plantain (Plantago lanceolata)	20	FACU	Herb
3.	Virginia Creeper (Parthenocissus quinquefolia)	20	FACU	Herb
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: All species present are FACU.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 7.5YR 3/3 (100%) Mottle Colors: N/A

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: **This is a characteristic upland soil without any colors or hydric indicators.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: None

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale: No primary or secondary wetland hydrology indicators exist.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W005-1W

Note: if a more detailed site description is necessary, provide detail here: Salt marsh community POW connected to Lakes Bay situated adjacent to US Route 322.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Common Duckweed (Lemna minor)	40	OBL	Herb
2.	Species Name	% Cover	STATUS	Stratum
3.	Species Name	% Cover	STATUS	Stratum
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: The only species present is OBL.

SOILS

Series/Phase: **PstAt: Psammaquents, sulfidic substratum, 0 to 2 percent slopes** Subgroup: Psammaquents

Is the soil on the hydric soils list? Yes ☐ No ☐ Undetermined ☒

Is the soil a Histosol? Yes ☐ No ☐ Histic epidedon present? Yes ☐ No ☐

Is the soil: Mottled? Yes ☐ No ☐ Gleyed? Yes ☐ No ☐

Matrix Color: Click or tap here to enter text. Mottle Colors: Click or tap here to enter text.

Other hydric soil indicators: Other

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **Soils not sampled due to deep open water.**

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 24" + inches

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0 inches

List of other field evidence of surface inundation or soil saturation: Inundation visible on aerial imagery, geomorphic position, FAC neutral test, drainage patterns, algal mat or crust, true aquatic plants, hydrogen sulfide odor, aquatic fauna (amphibians, fiddler crabs).

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W005A-1W

Note: if a more detailed site description is necessary, provide detail here: Salt marsh community PEM connected to Lakes Bay situated adjacent to US Route 322.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Smooth Cordgrass (Spartina alterniflora)	100	OBL	Herb
2.	Species Name	% Cover	STATUS	Stratum
3.	Species Name	% Cover	STATUS	Stratum
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: The only species present is OBL.

SOILS

Series/Phase: **PstAt: Psammaquents, sulfidic substratum, 0 to 2 percent slopes** Subgroup: Psammaquents

Is the soil on the hydric soils list? Yes ☐ No ☐ Undetermined ☒

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-20" 10YR 4/1 (98%) Mottle Colors: 7.5YR 4/6

Other hydric soil indicators: Depleted Matrix

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **Meets the Depleted Matrix hydric soil classification.**

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 4" inches

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0 inches

List of other field evidence of surface inundation or soil saturation: Inundation visible on aerial imagery, geomorphic position, FAC neutral test, drainage patterns, algal mat or crust, true aquatic plants, hydrogen sulfide odor, aquatic fauna (amphibians, fiddler crabs).

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W006-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of mowed roadside.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Fescue (Festuca rubra)	60	FACU	Herb
2.	English Plantain (Plantago lanceolata)	20	FACU	Herb
3.	Virginia Creeper (Parthenocissus quinquefolia)	20	FACU	Herb
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: All species present are FACU.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 7.5YR 3/3 (100%) Mottle Colors: N/A

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: **This is a characteristic upland soil without any colors or hydric indicators.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: None

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale: No primary or secondary wetland hydrology indicators exist.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W006-1W

Note: if a more detailed site description is necessary, provide detail here: Salt marsh community PEM connected to Lakes Bay situated adjacent to US Route 322.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Common Reed (Phragmites australis)	100	FACW	Herb
2.	Species Name	% Cover	STATUS	Stratum
3.	Species Name	% Cover	STATUS	Stratum
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: The only species present is FACW.

SOILS

Series/Phase: **PstAt: Psammaquents, sulfidic substratum, 0 to 2 percent slopes** Subgroup: Psammaquents

Is the soil on the hydric soils list? Yes ☐ No ☐ Undetermined ☒

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-10" 10YR 2/1 (100%); 10-12" 2.5Y 5/4 (95%) Mottle Colors: 10-12" 7.5YR 6/6 (5%)

Other hydric soil indicators: S7 Dark Surface

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **Meets the Dark Surface hydric soil classification.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: Saturation visible on aerial imagery, geomorphic position, FAC neutral test, drainage patterns.

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W007-1U

Note: if a more detailed site description is necessary, provide detail here: Area consists of mowed roadside.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Red Fescue (Festuca rubra)	60	FACU	Herb
2.	English Plantain (Plantago lanceolata)	20	FACU	Herb
3.	Virginia Creeper (Parthenocissus quinquefolia)	20	FACU	Herb
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 0%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale: All species present are FACU.

SOILS

Series/Phase: **AugaA: Aura sandy loam, 0 to 2 percent slopes** Subgroup: Aura

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 7.5YR 3/3 (100%) Mottle Colors: N/A

Other hydric soil indicators: None

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: **This is a characteristic upland soil without any colors or hydric indicators.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: None

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: None

List of other field evidence of surface inundation or soil saturation: None

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale: No primary or secondary wetland hydrology indicators exist.

Data Form

Routine Onsite Determination Form

Field Investigators: HB, AL Date: 06/21/2022

Project/Site: Atlantic Shores State: NJ County: Atlantic

Applicant/Owner: Atlantic Shores, LLC

Plant Community#/Name: 37-W007-1W

Note: if a more detailed site description is necessary, provide detail here: Salt marsh community PEM connected to Lakes Bay situated adjacent to US Route 322.

Do normal environmental conditions exist at the plant community?

Yes ☒ No ☐ (If no, explain) Click or tap here to enter text.

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes☐ No☒ (If yes, explain) Click or tap here to enter text.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Common Reed (Phragmites australis)	100	FACW	Herb
2.	Species Name	% Cover	STATUS	Stratum
3.	Species Name	% Cover	STATUS	Stratum
4.	Species Name	% Cover	STATUS	Stratum
5.	Species Name	% Cover	STATUS	Stratum
6.	Species Name	% Cover	STATUS	Stratum
7.	Species Name	% Cover	STATUS	Stratum
8.	Species Name	% Cover	STATUS	Stratum
9.	Species Name	% Cover	STATUS	Stratum
10.	Species Name	% Cover	STATUS	Stratum
11.	Species Name	% Cover	STATUS	Stratum
12.	Species Name	% Cover	STATUS	Stratum
13.	Species Name	% Cover	STATUS	Stratum
14.	Species Name	% Cover	STATUS	Stratum
15.	Species Name	% Cover	STATUS	Stratum

Percent of Dominant Species that are OBL, FACW, and/or FAC: 100%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale: The only species present is FACW.

SOILS

Series/Phase: **PstAt: Psammaquents, sulfidic substratum, 0 to 2 percent slopes** Subgroup: Psammaquents

Is the soil on the hydric soils list? Yes ☐ No ☐ Undetermined ☒

Is the soil a Histosol? Yes ☐ No ☒ Histic epidedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-10" 10YR 2/1 (100%); 10-12" 2.5Y 5/4 (95%) Mottle Colors: 10-12" 7.5YR 6/6 (5%)

Other hydric soil indicators: S7 Dark Surface

Is the hydric soil criterion met? Yes ☒ No ☐

Rationale: **Meets the Dark Surface hydric soil classification.**

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: Saturation visible on aerial imagery, geomorphic position, FAC neutral test, drainage patterns.

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale: Multiple primary and secondary hydrology indicators present.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W001-1U
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): convex | Slope (%): 5-10
Subregion (LRR or MLRA): LRR S | Lat: 39.36682467 | Long: -74.4713795 | Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W001-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juniperus virginiana* / Eastern red-cedar	25	Yes	FACU
2. *Pinus rigida* / Pitch pine	15	Yes	FACU
3. *Betula* / Birch	10	Yes	NI
4.			
5.			
6.			
7.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 Feet)			
1. *Phragmites australis* / Common reed	5	Yes	FACW
2. *Lonicera japonica* / Japanese honeysuckle	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	

Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	45	x 4 =	180
UPL species	10	x 5 =	50
Column Totals:	60 (A)		240 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W001-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Sandy Loam	
4-12	10YR 6/8	75	10YR 5/1	25	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Root refusal at 12 inches.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W001-1W
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Depressional shore | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR or MLRA): LRR S | Lat: 39.36682083 | Long: -74.47130783 | Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: 26-W01-1W

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 3
Water Table Present? Yes X No ____ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W001-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Iva frutescens* / Jesuit's-bark	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Spartina patens* / Salt meadow cord grass, Salt-meadow cor	80	Yes	FACW
2. *Phragmites australis* / Common reed	10	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		190 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W001-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soil could not be collected due to standing water and soil surface saturation. Soil samples fell apart when pulling augur out.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W001-2U
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): convex | Slope (%): 15-20
Subregion (LRR or MLRA): LRR S | Lat: 39.368204 | Long: -74.472362 | Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W001-2U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juniperus virginiana* / Eastern red-cedar	25	Yes	FACU
2. *Pinus rigida* / Pitch pine	15	Yes	FACU
3. *Betula* / Birch	10	Yes	NI
4.			
5.			
6.			
7.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 Feet)			
1. *Phragmites australis* / Common reed	5	Yes	FACW
2. *Lonicera japonica* / Japanese honeysuckle	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	

Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	45	x 4 =	180	
UPL species	10	x 5 =	50	
Column Totals:	60	(A)	240	(B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W001-2U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Sandy Loam	
4-12	10YR 6/8	75	10YR 5/1	25	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Root refusal at 12 inches.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W001-2W
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Water | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR or MLRA): LRR S | Lat: 39.3683765 | Long: -74.47243067 | Datum: WGS 1984
Soil Map Unit Name: Water, saline | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: 26-W001-2W

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 12+
Water Table Present? Yes X No ____ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W001-2W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 Feet)			
1. *Spartina alterniflora* / Salt water cord grass, Salt-water cord g	30	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	

Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	30 (A)		30 (B)

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W001-2W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Water, soil unable to be collected.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W002-1U
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Roadside | Local relief (concave, convex, none): convex | Slope (%): 0-2
Subregion (LRR or MLRA): LRR S | Lat: 39.37198117 | Long: -74.47867033 | Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W002-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Phragmites australis* / Common reed	20	Yes	FACW
2. *Artemisia vulgaris* / Common wormwood	10	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	30 (A)		90 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W002-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Unable to take soil in upland along the roadside due to buried high pressure pipeline running underneath the ROW. Soil was also unable to be obtained upland of the wetland area associated with flag 26-W002-11 as the upland was a paved parking lot.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W002-1W
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): depressional marsh | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR or MLRA): LRR S | Lat: 39.372018 | Long: -74.478587 | Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: 26-W002-1W

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 12+
Water Table Present? Yes X No ____ Depth (inches): 12
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W002-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Spartina patens* / Salt meadow cord grass, Salt-meadow cor	50	Yes	FACW
2. *Spartina alterniflora* / Salt water cord grass, Salt-water cord g	25	Yes	OBL
3. *Salicornia depressa* / Virginia glasswort	15	No	OBL
4. *Phragmites australis* / Common reed	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		160 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: 26-W002-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Mucky Peat	
6-18	10YR 3/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/09/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W005-1U
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): convex | Slope (%): 0-10
Subregion (LRR or MLRA): LRR S | Lat: 39.40377233 | Long: -74.5670325 | Datum: WGS 1984
Soil Map Unit Name: Atsion sand, 0 to 2 percent slopes, Northern Tidewater Area | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W005-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	30	Yes	FAC
2. *Quercus rubra* / Northern red oak	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Juniperus virginiana* / Eastern red-cedar	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10	= Total Cover	

Herb Stratum (Plot size: 5 Feet)			
1. *Lonicera japonica* / Japanese honeysuckle	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5	= Total Cover	

Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	55 (A)		190 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: 26-W005-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Fine Sand	
6-12	10YR 2/2						Fine Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/08/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W005-1W
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Depressional area | Local relief (concave, convex, none): concave | Slope (%): 0-5
Subregion (LRR or MLRA): LRR S | Lat: 39.40380117 | Long: -74.56709033 | Datum: WGS 1984
Soil Map Unit Name: Atsion sand, 0 to 2 percent slopes, Northern Tidewater Area | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: 26-W005-1W

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 6+
Water Table Present? Yes X No ____ Depth (inches): 6
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W005-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Phragmites australis* / Common reed	50	Yes	FACW
2. *Lonicera japonica* / Japanese honeysuckle	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	55 (A)		120 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W005-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Sandy Loam	
3-12	10YR 5/1	98	10YR 6/6	2	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Gravel refusal at 12

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff City/County: Absecon, Atlantic County, NJ Sampling Date: 02/09/2023
Applicant/Owner: ASOW State: New Jersey Sampling Point: 26-W006-1U
Investigator(s): TCAL Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Gentle slope Local relief (concave, convex, none): convex Slope (%): 0-3
Subregion (LRR or MLRA): LRR S Lat: 39.412889 Long: -74.59619533 Datum: WGS 1984
Soil Map Unit Name: Mullica sandy loam, 0 to 2 percent slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No ____
If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____
Water Table Present? Yes ____ No ____ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W006-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus rigida* / Pitch pine	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Ilex glabra* / Inkberry	25	Yes	FACW
2. *Unknown*	10	Yes	NI
3.			
4.			
5.			
6.			
7.			
	35	= Total Cover	

Herb Stratum (Plot size: 5 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	

Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.6 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	75 (A)		220 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W006-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/1	100					Very Fine Sanc	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/09/2023
Applicant/Owner: TCAL | State: New Jersey | Sampling Point: 26-W006-1W
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Depression | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR or MLRA): LRR S | Lat: 39.41284067 | Long: -74.59630233 | Datum: WGS 1984
Soil Map Unit Name: Mullica sandy loam, 0 to 2 percent slopes | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ____
Hydric Soil Present?	Yes X	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes X	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W006-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	60	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Unknown*	50	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
	50	= Total Cover	

Herb Stratum (Plot size: 5 Feet)			
1. *Carex* / Sedge	10	Yes	FACW
2. *Smilax rotundifolia* / Horsebrier	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15	= Total Cover	

Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	15	x 2 =	30	
FAC species	60	x 3 =	180	
FACU species	0	x 4 =	0	
UPL species	50	x 5 =	250	
Column Totals:	125	(A)	460	(B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W006-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff City/County: Absecon, Atlantic County, NJ Sampling Date: 02/15/2023
Applicant/Owner: ASOW State: New Jersey Sampling Point: 26-W007-1U
Investigator(s): TCAL Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Roadside hillslope Local relief (concave, convex, none): convex Slope (%): 0-5
Subregion (LRR or MLRA): LRR S Lat: 39.37415633 Long: -74.48207133 Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No ____
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W007-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Juniperus virginiana* / Eastern red-cedar	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Lonicera japonica* / Japanese honeysuckle	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	15 (A)		60 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W007-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Sand	
6-18	10YR 3/2	75	10YR 5/4	25		M	Sand	Redox color is actually broken rocks and st

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Absecon, Atlantic County, NJ | Sampling Date: 02/15/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W007-1W
Investigator(s): TCAL | Section, Township, Range: Absecon, Atlantic County, NJ
Landform (hillslope, terrace, etc): Bowl shaped depression | Local relief (concave, convex, none): concave | Slope (%): 0-5
Subregion (LRR or MLRA): LRR S | Lat: 39.37415417 | Long: -74.48207383 | Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes ____ No ____

Is the Sampled Area within a Wetland? Yes ____ No ____
If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes X No ____ Depth (inches): 0
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W007-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Phragmites australis* / Common reed	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W007-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					Sandy Loam	
4-6	10YR 5/2	100					Sand	Gravel present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Water prevents soil collection past 6 inches.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff City/County: Atlantic City, Atlantic County, NJ Sampling Date: 02/15/2023
Applicant/Owner: ASOW State: New Jersey Sampling Point: 37-W007A-1U
Investigator(s): TCAL Section, Township, Range: Atlantic City, Atlantic County, NJ
Landform (hillslope, terrace, etc): Roadside hillslope Local relief (concave, convex, none): convex Slope (%): 0-5
Subregion (LRR or MLRA): LRR S Lat: 39.373461 Long: -74.48182967 Datum: WGS 1984
Soil Map Unit Name: Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 37-W007A-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus rigida* / Pitch pine	10	Yes	FACU
2. *Juniperus virginiana* / Eastern red-cedar	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	20	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5 Feet)			
1. *Lonicera japonica* / Japanese honeysuckle	10	Yes	FACU
2. *Phragmites australis* / Common reed	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20	= Total Cover	

Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	40 (A)		140 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 37-W007A-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	75	10YR 5/4	25			Sand	
5-18	10YR 4/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Atlantic City, Atlantic County, NJ | Sampling Date: 02/15/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 37-W007A-1W
Investigator(s): ASOW | Section, Township, Range: Atlantic City, Atlantic County, NJ
Landform (hillslope, terrace, etc): Salt flat | Local relief (concave, convex, none): none | Slope (%): 0-2
Subregion (LRR or MLRA): LRR S | Lat: 39.373411 | Long: -74.481812 | Datum: WGS 1984
Soil Map Unit Name: Transquaking peat, 0 to 1 percent slopes, very frequently flooded | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	If yes, optional Wetland Site ID: 37-W007A-1W
Wetland Hydrology Present?	Yes X	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 0-3
Water Table Present?	Yes X	No ____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 37-W007A-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Spartina patens* / Salt meadow cord grass, Salt-meadow cor	75	Yes	FACW
2. *Limonium carolinianum* / Carolina sea-lavender	1	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	76	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	75	x 2 =	150
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	76 (A)		151 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 37-W007A-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Muck	
10-12	10YR 5/1	100					Fine Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Water levels prevent soil from being extracted past 12 inches.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff City/County: Atlantic City, Atlantic County, NJ Sampling Date: 02/16/2023
Applicant/Owner: ASOW State: New Jersey Sampling Point: 26-W008-1U
Investigator(s): TCAL Section, Township, Range: Atlantic City, Atlantic County, NJ
Landform (hillslope, terrace, etc): Flat Local relief (concave, convex, none): convex Slope (%): 0-2
Subregion (LRR or MLRA): LRR S Lat: 39.376304 Long: -74.429014 Datum: WGS 1984
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	If yes, optional Wetland Site ID:
Wetland Hydrology Present?	Yes	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W008-1U

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Poa pratensis* / Kentucky blue grass	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	30 (A)		120 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: 26-W008-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No soils able to be collected due to asphalt, stone revetment, and open water.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: COP South Cardiff | City/County: Atlantic City, Atlantic County, NJ | Sampling Date: 02/15/2023
Applicant/Owner: ASOW | State: New Jersey | Sampling Point: 26-W008-1W
Investigator(s): TCAL | Section, Township, Range: Atlantic City, Atlantic County, NJ
Landform (hillslope, terrace, etc): Water | Local relief (concave, convex, none): concave | Slope (%): 0-10
Subregion (LRR or MLRA): LRR S | Lat: 39.376283 | Long: -74.428993 | Datum: WGS 1984
Soil Map Unit Name: | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	If yes, optional Wetland Site ID: 26-W08-1W
Wetland Hydrology Present?	Yes X	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 12+
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: 26-W008-1W

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Feet)			
1. *Phragmites australis* / Common reed	25	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: 30 Feet)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	25 (A)		50 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: 26-W008-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R,MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

No water was able to be collected due to water levels.

Data Form

Routine Onsite Determination Form

Field Investigators: Scott McBurney Date: 9/26/2023

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: 99-W23-U1

Note: if a more detailed site description is necessary, provide detail here:

Do normal environmental conditions exist at the plant community? Yes ☒ No ☐ (If no, please explain):

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes☒ No☐

(If yes, explain): Soil is disturbed from previous grading, filling and compaction of existing utility roadway.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Pitch pine (*Pinus rigida*)	10	FAC	Tree
2.	Huckleberry (*Gaylussacia* sp.)	40	NI	Shrub
3.	White oak (*Quercus alba*)	35	FACU	Tree, herbaceous
4.	Lowbush blueberry (*Vaccinium angustifolium*)	1	FACU	Shrub

Percent of Dominant Species that are OBL, FACW, and/or FAC: 10%

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale:

SOILS

Series/Phase: Downer Loamy Sand Subgroup:

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-5" 10YR 4/3 sand; 5-10"+ 5Y 5/5 sand

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Scott McBurney Date: 9/26/2023

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind Plant Community#/Name: 99-W23-1W

Note: if a more detailed site description is necessary, provide detail here: Located within an existing, maintained and compacted utility roadway.

Do normal environmental conditions exist at the plant community? Yes ☒ No ☐ (If no, please explain):

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes☒ No ☐ (If yes, please explain): Soil is disturbed from previous grading, filling and compaction of existing utility roadway.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Watershield (*Brasenia schreberi*)	20	OBL	Herbaceous
2.	Rice cut grass (*Leersia oryzoides)*	25	OBL	Herbaceous
3.	Bur reed (*Sparganium americanum*)	15	OBL	Herbaceous
4.	Devil's beggartick (*Bidens frondosa*)	5	FACW	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 65%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Downer Loamy Sand Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-4" 5Y 4/4 sand; 4-7" 5Y 4/4 sand with 5Y 4/2 concentrations in the matrix. Refusal at 7-8 inches.

Mottle Colors: 5Y 4/2

Other hydric soil indicators: Saturated soils

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: Soils are disturbed due to the creation of the utility roadway (grading, filling, compaction) and consistent use and compaction from vehicles.

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 8" after heavy rain

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0"

List of other field evidence of surface inundation or soil saturation:

Water-stained leaves.

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Scott McBurney Date: 9/26/2023

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: 99-W24-U1

Note: if a more detailed site description is necessary, provide detail here:

Do normal environmental conditions exist at the plant community? Yes ☒ No ☐ (If no, please explain):

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes☒ No☐

(If yes, explain): Soil is disturbed from previous grading, filling and compaction of existing utility roadway.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Eastern red cedar (*Juniperus virginiana*) 2.	40	FACU	Tree
	Common reed (*Phragmites australis)*	20	FACW	Herbaceous
3.	Longleaf pine (*Pinus palustris*)	5	FAC	Tree
4.	Dogbane (*Apocynum* sp.)	3	NI	Herbaceous
5.	Japanese honey suckle (*Lonicera japonica*)	15	FACU	Herbaceous
6.	Chinese bush clover (*Lespedeza cuneata*)	5	UPL	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: TBD

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale:

SOILS

Series/Phase: Downer Loamy Sand Subgroup:

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 10YR 3/3 sandy loam; 5-13"+ 10YR 4/3 sand

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Scott McBurney Date: 9/26/2023

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind Plant Community#/Name: 99-W24-1W

Note: if a more detailed site description is necessary, provide detail here: Located within an existing, maintained and compacted utility roadway.

Do normal environmental conditions exist at the plant community? Yes ☒ No ☐ (If no, please explain):

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes☒ No ☐ (If yes, please explain): Soil is disturbed from previous grading, filling and compaction of existing utility roadway.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Common reed (*Phragmites australis)*	60	OBL	Herbaceous
2.	Rice cut grass (*Leersia oryzoides)*	20	OBL	Herbaceous
3.	Black willow (sapling) (*Salix nigra*)	1	OBL	Shrub/Sapling
4.	Canada goldenrod (*Solidago canadensis*)	3	FACU	Herbaceous
5.	Narrowleaf cattail (*Typha angustifolia*)	2	OBL	Herbaceous
6.	Three square (*Schoenoplectus pungens)*	5	OBL	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 88%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Downer Loamy Sand Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-5" 5Y 5/4 sand with gravel. Refusal at 5 inches.

Mottle Colors: N/A

Other hydric soil indicators: Saturated soils

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: Soils are disturbed due to the creation of the utility roadway (grading, filling, compaction) and consistent use and compaction from vehicles.

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 6”

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0”

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Scott McBurney Date: 9/26/2023

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: 99-W25-U1

Note: if a more detailed site description is necessary, provide detail here:

Do normal environmental conditions exist at the plant community? Yes ☒ No ☐ (If no, please explain):

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes☒ No☐

(If yes, explain): Soil is disturbed from previous grading, filling and compaction of existing utility roadway.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Chinese bush clover (*Serica lespedeza*)	60	UPL	Herbaceous
2.	Queen Anne's Lace (*Daucus carota*)	5	UPL	Herbaceous
3.	Daisy fleabane (*Erigeron annuus*)	3	FACU	Herbaceous
4.	Multiflora rose (*Rosa multiflora*)	10	FACU	Herbaceous
5.	Switchgrass (*Panicum virgatum*)	15	FAC	Herbaceous
6.	Sulfur cinquefoil (*Potentilla recta*)	3	NI	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 15

Is the hydrophytic vegetation criterion met? Yes ☐ No ☒

Rationale:

SOILS

Series/Phase: Downer Loamy Sand Subgroup:

Is the soil on the hydric soils list? Yes ☐ No ☒ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☐ No ☒ Gleyed? Yes ☐ No ☒

Matrix Color: 0-12" 5Y 6/3 with sandy clay with cobbles

Mottle Colors: N/A

Other hydric soil indicators: N/A

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale:

HYDROLOGY

Is the ground surface inundated? Yes ☐ No ☒ Surface water depth: N/A

Is the soil saturated? Yes ☐ No ☒

Depth to free-standing water in pit/soil probe hole: N/A

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☐ No ☒

Rationale:

Data Form

Routine Onsite Determination Form

Field Investigators: Scott McBurney Date: 9/26/2023

Project/Site: Cardiff Wetland Delineation State: NJ County: Atlantic County

Applicant/Owner: Atlantic Shores Offshore Wind

Plant Community#/Name: 99-W25-1W

Note: if a more detailed site description is necessary, provide detail here: Located within an existing, maintained and compacted utility roadway.

Do normal environmental conditions exist at the plant community? Yes ☒ No ☐ (If no, please explain):

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes☒ No ☐ (If yes, please explain): Soil is disturbed from previous grading, filling and compaction of existing utility roadway.

VEGETATION

	Dominant Plant Species	Percent Cover	Indicator Status	Stratum
1.	Rice cut grass (*Leersia oryzoides*)	80	OBL	Herbaceous
2.	Narrowleaf cattail (*Typha angustifolia*)	3	OBL	Herbaceous
3.	Switchgrass (*Panicum virgatum*)	15	FAC	Herbaceous
4.	Canada goldenrod (*Solidago canadensis*)	1	FACU	Herbaceous

Percent of Dominant Species that are OBL, FACW, and/or FAC: 88%

Is the hydrophytic vegetation criterion met? Yes ☒ No ☐

Rationale:

SOILS

Series/Phase: Downer Loamy Sand Subgroup: Aquents

Is the soil on the hydric soils list? Yes ☒ No ☐ Undetermined ☐

Is the soil a Histosol? Yes ☐ No ☒ Histic epipedon present? Yes ☐ No ☒

Is the soil: Mottled? Yes ☒ No ☐ Gleyed? Yes ☐ No ☒

Matrix Color: 0-6" 5Y 5/2 sandy clay; 6-11" 5Y 4/2 sand with 30% 5Y 3/2 concentrations in the matrix

Mottle Colors: 5Y 3/2

Other hydric soil indicators: Saturated soils

Is the hydric soil criterion met? Yes ☐ No ☒

Rationale: Soils are disturbed due to the creation of the utility roadway (grading, filling, compaction) and consistent use and compaction from vehicles.

HYDROLOGY

Is the ground surface inundated? Yes ☒ No ☐ Surface water depth: 3"

Is the soil saturated? Yes ☒ No ☐

Depth to free-standing water in pit/soil probe hole: 0"

List of other field evidence of surface inundation or soil saturation: N/A

Is the wetland hydrology criterion met? Yes ☒ No ☐

Rationale:

EDR Stream Determination Data Form

Project Name: Cardiff Wetland Delineation Project Number: 20043

Survey Date: 9/14/2021

Evaluators: Heather Berry, Scott McBurney

Stream ID: Watercourse 3 Data Point ID: WC - 3

Town: Atlantic City County: Atlantic State: New Jersey

Latitude: 39.378191 Longitude: -74.483255

Stream ID: Tidal creek associated with the Great Thorofare

Previous Weather: Snow ☐ Heavy Rain ☐ Rain ☐ None ☐ Unknown ☐

Adjacent Landcover: Tidal emergent wetlands, developed area, abandoned developed area, roadways

Ecological Communities: tidal emergent wetlands and urban habitat

Hydrologic Characteristics

Perceptible Flow? Yes ☒ No ☐

Flow Regime: R1-Tidal ☒ R2-Lower Perennial ☐
R3-Upper Perennial ☐ R4-Intermittent ☐
R5-Unknown Perennial ☐ R6-Ephemeral ☐

Flow Direction: influenced by tides from the Great Thorofare

Surface Water Present: Yes ☒ No ☐

Surface Water Depth at Thalweg: 1 foot or greater

Wetted (Stream) Width: 2 feet to 40 feet depending on location. (narrowest at highest elevation and widest at the mouth

Geomorphologic Characteristics

Gradient: Gentle (0-5 %) ☒ Moderate (6-11 %) ☐ Steep (>12 %) ☐

Substrate: Silt/Clay (<0.062 mm) ☐ Sand (0.062–2 mm) ☐ Gravel (2-64 mm) ☐
Cobble (64-256 mm) ☐ Boulder (256-4096 mm) ☐ Bedrock (>4096 mm) ☐

Bankful Width: 2 to 40 feet

Bank Height: ranged from 0.5 feet to 2 or more feet

Stream Conditions

Undercut Banks: Yes☐ No☒ Description:

Overhanging Vegetation: Yes☒ No☐ Description:

Deep Pools Present: Yes☒ No☐ Description:

Coarse Woody Debris: Yes☐ No☒ Description:

Channel Alteration: Channelization ☒ Channel Armoring ☐ Impoundment ☐ Other:

Is the stream a Drainage Ditch: Yes ☐ No ☒

Additional Notes

Channelization along roadways and culverts transport water under roads and bridges.

EDR Stream Determination Data Form

Project Name: Cardiff Wetland Delineation Project Number: 20043

Survey Date: 6/22-6/24/2020

Evaluators: Matt Spadoni, Jacqueline McMillen

Stream ID: Watercourse 4 Data Point ID: WC4 (Previously WC – 3)

Town: Atlantic City/Pleasantville/Egg Harbor Township County: Atlantic State: New Jersey

Latitude: 39.378122 Longitude: -74.487429

Stream ID: Tidal creek directly connected to the Great Thorofare

Previous Weather: Snow ☐ Heavy Rain ☐ Rain ☐ None ☐ Unknown ☐

Adjacent Landcover: tidal wetlands, urban develop areas, roadways

Ecological Communities: tidal wetlands, urban habitat

Hydrologic Characteristics

Perceptible Flow? Yes ☒ No ☐

Flow Regime: R1-Tidal ☒ R2-Lower Perennial ☐
R3-Upper Perennial ☐ R4-Intermittent ☐
R5-Unknown Perennial ☐ R6-Ephemeral ☐

Flow Direction: influenced by tide from the Great Thorofare

Surface Water Present: Yes ☒ No ☐

Surface Water Depth at Thalweg: inaccessible due to steep and often soft banks

Wetted (Stream) Width: 4 to 80 feet depending on location, narrowest at furthest point from the Great Thorofare and widest at the mouth.

Geomorphologic Characteristics

Gradient: Gentle (0-5 %) ☒ Moderate (6-11 %) ☐ Steep (>12 %) ☐

Substrate: Silt/Clay (<0.062 mm) ☐ Sand (0.062–2 mm) ☐ Gravel (2-64 mm) ☐
Cobble (64-256 mm) ☐ Boulder (256-4096 mm) ☐ Bedrock (>4096 mm) ☐

Bankful Width: 4 to 80 feet

Bank Height: 2 to 4+ feet, soft banks

Stream Conditions

Undercut Banks: Yes☐ No☒ Description:

Overhanging Vegetation: Yes☒ No☐ Description:

Deep Pools Present: Yes☒ No☐ Description:

Coarse Woody Debris: Yes☐ No☒ Description:

Channel Alteration: Channelization ☒ Channel Armoring ☐ Impoundment ☐ Other:

Is the stream a Drainage Ditch: Yes ☐ No ☐

Additional Notes

-

EDR Stream Determination Data Form

Project Name: Cardiff Wetland Delineation Project Number: 20043

Survey Date: 6/22-6/24/2020

Evaluators: Matt Spadoni, Jacqueline McMillen

Stream ID: Watercourse 5 Data Point ID: WC5 (Previously WC – 4)

Town: Egg Harbor County: Atlantic State: New Jersey

Latitude: 39.417936 Longitude: -74.611167

Stream ID: Mill Branch

Previous Weather: Snow ☐ Heavy Rain ☐ Rain ☐ None ☐ Unknown ☐

Adjacent Landcover: young growth wooded area between roadways and divided by a bike path

Ecological Communities: young-growth forest/shrub habitat, disturbed herbaceous habitat

Hydrologic Characteristics

Perceptible Flow? Yes ☐ No ☒

Flow Regime: R1-Tidal ☐ R2-Lower Perennial ☐
R3-Upper Perennial ☐ R4-Intermittent ☐
R5-Unknown Perennial ☐ R6-Ephemeral ☒

Flow Direction: north to south

Surface Water Present: Yes ☐ No ☒

Surface Water Depth at Thalweg: N/A

Wetted (Stream) Width: N/A

Geomorphologic Characteristics

Gradient: Gentle (0-5 %) ☒ Moderate (6-11 %) ☐ Steep (>12 %) ☐

Substrate: Silt/Clay (<0.062 mm) ☒ Sand (0.062–2 mm) ☒ Gravel (2-64 mm) ☒
Cobble (64-256 mm) ☐ Boulder (256-4096 mm) ☐ Bedrock (>4096 mm) ☐

Bankful Width: 5 feet

Bank Height: 3 – 4 feet

Stream Conditions

Undercut Banks: Yes☐ No☒ Description:

Overhanging Vegetation: Yes☒ No☐ Description:

Deep Pools Present: Yes☐ No☒ Description:

Coarse Woody Debris: Yes☐ No☒ Description:

Channel Alteration: Channelization ☒ Channel Armoring ☒ Impoundment ☐ Other:

Is the stream a Drainage Ditch: Yes ☐ No ☒

Additional Notes

A channelized swale that flows via culvert under a pedestrian bike path. Substrate consisted of sand, silt and gravel.

EDR Stream Determination Data Form

Project Name: Cardiff Wetland Delineation Project Number: 20043

Survey Date: 6/22-6/24/2020

Evaluators: Matt Spadoni, Jacqueline McMillen

Stream ID: Watercourse 6 Data Point ID: WC6 (Previously WC – 5)

Town: Egg Harbor County: Atlantic State: New Jersey

Latitude: 39.418963 Longitude: -74.614547

Stream ID: Unnamed Tributary to Mill Branch

Previous Weather: Snow ☐ Heavy Rain ☐ Rain ☐ None ☐ Unknown ☐

Adjacent Landcover: young growth wooded area between roadways and divided by a bike path

Ecological Communities: young-growth forest/shrub habitat, disturbed herbaceous habitat

Hydrologic Characteristics

Perceptible Flow? Yes ☐ No ☒

Flow Regime: R1-Tidal ☐ R2-Lower Perennial ☐
R3-Upper Perennial ☐ R4-Intermittent ☐
R5-Unknown Perennial ☐ R6-Ephemeral ☒

Flow Direction: north to south

Surface Water Present: Yes ☐ No ☒

Surface Water Depth at Thalweg: N/A

Wetted (Stream) Width: N/A

Geomorphologic Characteristics

Gradient: Gentle (0-5 %) ☒ Moderate (6-11 %) ☐ Steep (>12 %) ☐

Substrate: Silt/Clay (<0.062 mm) ☒ Sand (0.062–2 mm) ☒ Gravel (2-64 mm) ☒
Cobble (64-256 mm) ☐ Boulder (256-4096 mm) ☐ Bedrock (>4096 mm) ☐

Bankful Width: 6 feet

Bank Height: 3 – 4 feet

Stream Conditions

Undercut Banks: Yes☐ No☒ Description:

Overhanging Vegetation: Yes☒ No☐ Description:

Deep Pools Present: Yes☐ No☒ Description:

Coarse Woody Debris: Yes☐ No☒ Description:

Channel Alteration: Channelization ☒ Channel Armoring ☒ Impoundment ☐ Other:

Is the stream a Drainage Ditch: Yes ☐ No ☒

Additional Notes

A channelized swale that flows via culvert under a pedestrian bike path. Substrate consisted of sand, silt and gravel.

COP South Stream Scoring Form 1

Project	20043 Atlantic Shores COP South
ID	314730
Survey Date	02/09/2023
User	Andrew Leonardi
Stream ID:	26-ST01
Administrative 1	
Investigator(s)	TCAL
Latitude, Longitude	
Latitude	39.41041367
Longitude	-74.58851217
Current Precipitation	None
Precipitation in Past 48 Hours	Rain
Town/County/State	Absecon, Atlantic County, NJ
General Characteristics 1	
NYSDEC Mapped Stream	No
Drainage Ditch	No
Surface Water Depth at Thalweg (Inches)	0
Stream Gradient	Moderate (6-11%)
Substrate	Gravel, Sand (Gritty feel)
OHWM width for stream reach (feet)	1-3
Geomorphology	
Continuity of channel bed and bank	2-Moderate
Sinuosity of channel along thalweg	0-Absent
In Channel Structures	0-Absent
Particle Size of Stream Substrate	1-Weak
Active/Relic Floodplain	0-Absent
Depositional Bars or Benches	0-Absent
Recent Alluvial Deposits	0-Absent
Are Headcuts present	0-Absent
Grade Control	0-Absent
Natural Valley	0.5-Weak
Second or Greater Order	0-No

Channel	
Subtotal =	3.5

Hydrology	
Presence of Baseflow	0-Absent
Iron Oxidizing Bacteria	0-Absent
Leaf Litter	0.5-Moderate
Sediment on Plants or Debris	0-Absent
Organic Debris Lines or Piles	0-Absent
Soil-based evidence of high water table	0-No
Subtotal =	0.5

Biology	
Fibrous Roots in Streambed	0-Strong
Rooted Upland Plants in Streambed	1-Moderate
Aquatic Macroinvertebrates	0-Absent
Aquatic Mollusks	0-Absent
Fish	0-Absent
Crayfish	0-Absent
Amphibians	0-Absent
Algae	0-Absent
Wetland Plants in Streambed	0-Other
Subtotal =	1

Stream Type Determination	
Total Score	5
Stream Determination	Ephemeral (<19)

Notes	
Notes	

COP South Stream Scoring Form 1

Project	20043 Atlantic Shores COP South
ID	314749
Survey Date	02/09/2023
User	Andrew Leonardi
Stream ID:	26-ST02

Administrative 1	
Investigator(s)	TCAL
Latitude, Longitude	
Latitude	39.413036
Longitude	-74.596666

Current Precipitation	None
Precipitation in Past 48 Hours	Rain
Town/County/State	Absecon, Atlantic County, NJ

General Characteristics 1	
NYSDEC Mapped Stream	No
Drainage Ditch	No
Surface Water Depth at Thalweg (Inches)	5
Stream Gradient	Gentle (0-5%)
Substrate	Sand (Gritty feel), Silt/Clay (No grit)
OHWM width for stream reach (feet)	6-8

Geomorphology	
Continuity of channel bed and bank	1-Weak
Sinuosity of channel along thalweg	2-Moderate
In Channel Structures	1-Weak
Particle Size of Stream Substrate	1-Weak
Active/Relic Floodplain	3-Strong
Depositional Bars or Benches	1-Weak
Recent Alluvial Deposits	0-Absent
Are Headcuts present	0-Absent
Grade Control	0-Absent
Natural Valley	0.5-Weak
Second or Greater Order Channel	0-No
Subtotal =	9.5

Hydrology	
Presence of Baseflow	2-Moderate
Iron Oxidizing Bacteria	3-Strong
Leaf Litter	1-Weak
Sediment on Plants or Debris	0.5-Weak
Organic Debris Lines or Piles	0-Absent
Soil-based evidence of high water table	3-Yes
Subtotal =	9.5

Biology	
Fibrous Roots in Streambed	3-Absent
Rooted Upland Plants in Streambed	3-Absent

Aquatic Macroinvertebrates	1-Weak
Aquatic Mollusks	1-Weak
Fish	0-Absent
Crayfish	0-Absent
Amphibians	1.5-Strong
Algae	1.5-Strong
Wetland Plants in Streambed	0.75-FACW
Subtotal =	11.75

Stream Type Determination	
Total Score	30.75
Stream Determination	Perennial (≥30)

Notes	
Notes	

COP South Stream Scoring Form 1

Project	20043 Atlantic Shores COP South
ID	315011
Survey Date	02/09/2023
User	Andrew Leonardi
Stream ID:	26-ST03

Administrative 1	
Investigator(s)	TCAL
Latitude, Longitude	
Latitude	39.41858005
Longitude	-74.61471983
Current Precipitation	None
Precipitation in Past 48 Hours	Rain
Town/County/State	Absecon, Atlantic County, NJ

General Characteristics 1	
NYSDEC Mapped Stream	No
Drainage Ditch	No
Surface Water Depth at Thalweg (Inches)	0
Stream Gradient	Gentle (0-5%)
Substrate	Sand (Gritty feel), Silt/Clay (No grit)
OHWM width for stream reach (feet)	5

Geomorphology	
Continuity of channel bed and bank	3-Strong
Sinuosity of channel along	0-Absent

thalweg	
In Channel Structures	0-Absent
Particle Size of Stream Substrate	1-Weak
Active/Relic Floodplain	0-Absent
Depositional Bars or Benches	0-Absent
Recent Alluvial Deposits	0-Absent
Are Headcuts present	0-Absent
Grade Control	0-Absent
Natural Valley	0-Absent
Second or Greater Order Channel	0-No
Subtotal =	4

Hydrology	
Presence of Baseflow	0-Absent
Iron Oxidizing Bacteria	0-Absent
Leaf Litter	0-Strong
Sediment on Plants or Debris	0-Absent
Organic Debris Lines or Piles	0-Absent
Soil-based evidence of high water table	0-No
Subtotal =	0

Biology	
Fibrous Roots in Streambed	0-Strong
Rooted Upland Plants in Streambed	3-Absent
Aquatic Macroinvertebrates	0-Absent
Aquatic Mollusks	0-Absent
Fish	0-Absent
Crayfish	0-Absent
Amphibians	0-Absent
Algae	0-Absent
Wetland Plants in Streambed	0-Other
Subtotal =	3

Stream Type Determination	
Total Score	7
Stream Determination	Ephemeral (<19)

Notes	
Notes	

COP South Stream Scoring Form 1	
Project	20043 Atlantic Shores COP South
ID	317589
Survey Date	02/23/2023
User	Andrew Leonardi
Stream ID:	26-ST010
Administrative 1	
Investigator(s)	TCAL
Latitude, Longitude	
Latitude	39.417569
Longitude	-74.611359
Current Precipitation	None
Precipitation in Past 48 Hours	None
Town/County/State	Absecon, Atlantic County, NJ
General Characteristics 1	
NYSDEC Mapped Stream	No
Drainage Ditch	No
Surface Water Depth at Thalweg (Inches)	12+
Stream Gradient	Gentle (0-5%)
Substrate	Bedrock, Gravel, Sand (Gritty feel)
OHWM width for stream reach (feet)	10-14
Geomorphology	
Continuity of channel bed and bank	3-Strong
Sinuosity of channel along thalweg	1-Weak
In Channel Structures	1-Weak
Particle Size of Stream Substrate	3-Strong
Active/Relic Floodplain	0-Absent
Depositional Bars or Benches	0-Absent
Recent Alluvial Deposits	0-Absent
Are Headcuts present	0-Absent
Grade Control	0-Absent
Natural Valley	0.5-Weak
Second or Greater Order Channel	0-No
Subtotal =	8.5
Hydrology	
Presence of Baseflow	3-Strong

Iron Oxidizing Bacteria	2-Moderate
Leaf Litter	1.5-Absent
Sediment on Plants or Debris	0-Absent
Organic Debris Lines or Piles	0-Absent
Soil-based evidence of high water table	0-No
Subtotal =	6.5

Biology	
Fibrous Roots in Streambed	3-Absent
Rooted Upland Plants in Streambed	3-Absent
Aquatic Macroinvertebrates	1-Weak
Aquatic Mollusks	0-Absent
Fish	0-Absent
Crayfish	0-Absent
Amphibians	0-Absent
Algae	0.5-Weak
Wetland Plants in Streambed	0.75-FACW
Subtotal =	8.25

Stream Type Determination	
Total Score	23.25
Stream Determination	Intermittent (≥19)

Notes
Notes

APPENDIX C

Photo Documentation

Photo 1

Looking Northwest at Wetland 1

Coordinates:
39.362337°, -74.462562°

Photo 2

Wetland 001 Drainage Basin

Coordinates:
39.39242°, -74.55566°

Photo 3

Wetland 001A Man-Made Vernal Pool

Coordinates:
39.39249°, -74.5566°

Photo 4

Wetland 002 Drainage Basin

Coordinates:
39.39317°, -74.55721°

Photo 5

Endwall feeding wetland 002

Coordinates:
39.39293°, -74.55695°

Photo 6

Outfall draining Wetland 002, feeding Wetland 001A

Coordinates:
39.39302°, -74.55653°

Photo 7

Looking Southeast at Wetland 2

Coordinates:
39.372883°, -74.479728°

Photo 8

Looking West at Wetland 3

Coordinates:
39.4044°, -74.566825°

Photo 9

Wetland 003

Coordinates:
39.39251°, -74.54939°

Photo 10

Looking Northwest at Wetland 4

Coordinates:
39.412553°, -74.593636°

Photo 11

Wetland 004

Coordinates:
39.38303°, -74.50156°

Photo 12

Looking West at Wetland 5

Coordinates:
39.413503°, -74.596572°

Photo 13

Wetland 005/005A(B) complex representative photo

Coordinates:
39.38109°, -74.49691°

Photo 14

Looking North at Wetland 6

Coordinates:
39.419075°, -74.61515°

Photo 15

Wetland 006

Coordinates:
39.37924°, -74.49234°

Photo 16

Representative Photo of Hydric Soils in Tidal Wetlands

Coordinates:
39.363547°, -74.467408°

Photo 17

Representative Photo of Hydric Soils in Inland Wetlands

Coordinates:
39.404381°, -74.566772°

Photo 18

Watercourse 001

Coordinates:
39.35685°, -74.45344°

Photo 19

Looking Southwest at Watercourse 3

Coordinates:
39.372307°, -74.473078°

Photo 20

Looking Southwest at Watercourse 4

Coordinates:
39.377936°, -74.487183°

Photo 21

Looking Southeast at Watercourse 5

Coordinates:
39.417931°, -74.611244°

Photo 22

Watercourse 6

Coordinates:
39.41793°, -74.61124°

Photo 23

Looking Northeast at Proposed O&M Facility and Watercourse 9

Coordinates:
39.375497°, -74.428998°

Photo 24

Representative View of On-Site Uplands

Coordinates:
39.391006°, -74.523331°

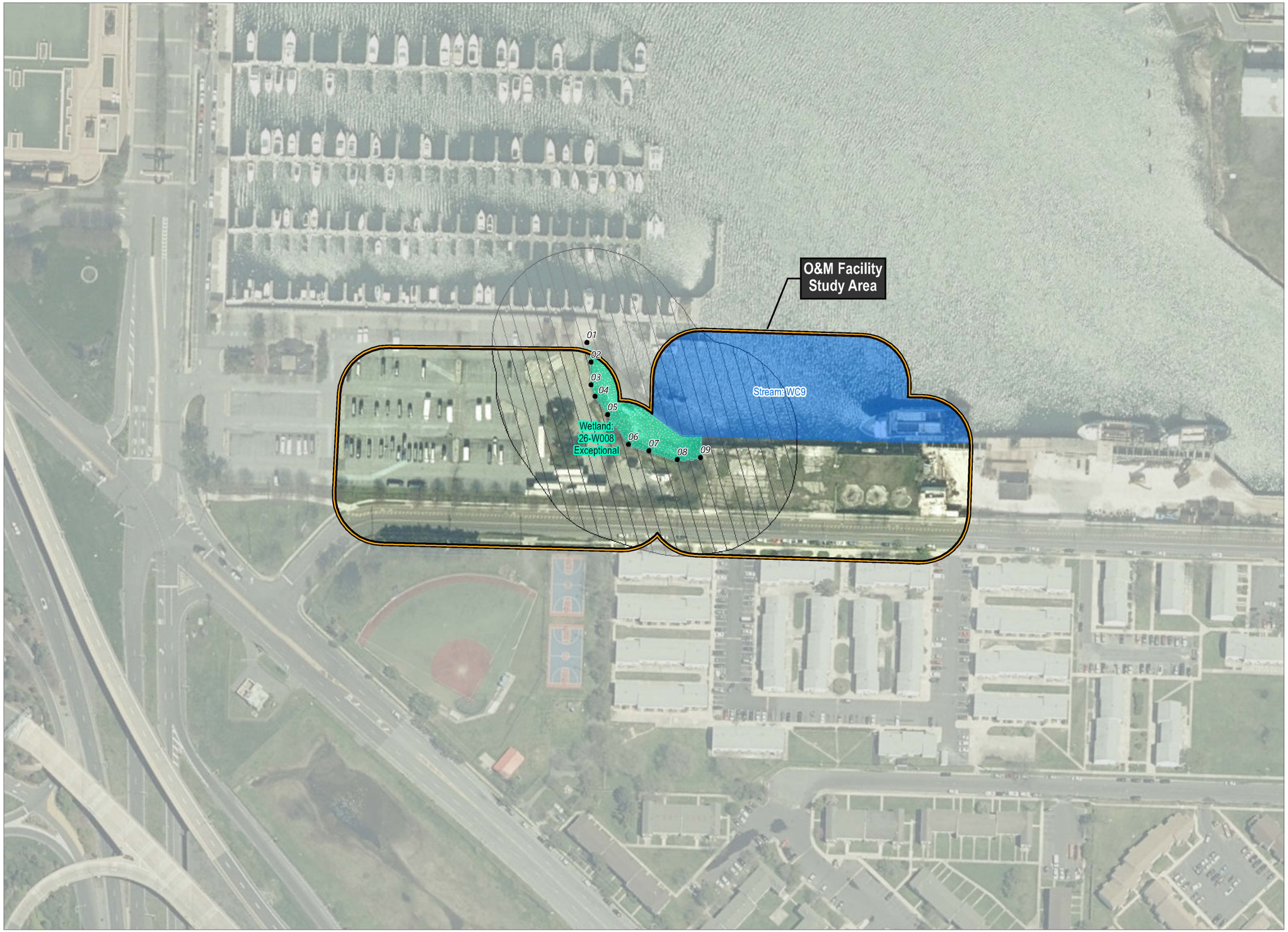
Photo 25

Representative View of On-Site Uplands

Coordinates:
39.410381°, -74.586631°

APPENDIX D

Field Delineated Wetlands and Streams Plans



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area

0 50 100 200

Feet

Prepared December 12, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area

0 50 100 200

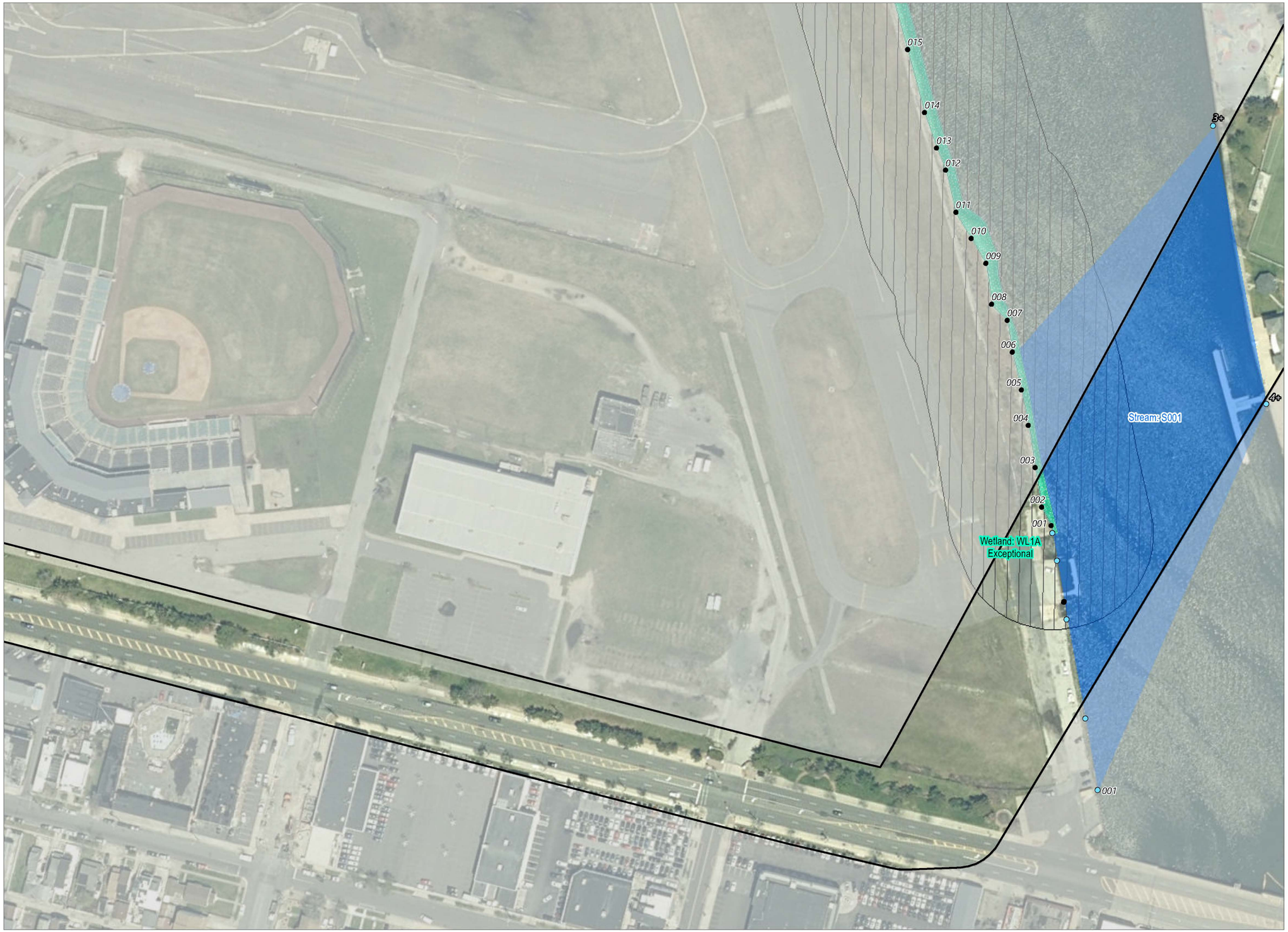
Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area

0 50 100 200

Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area

0 50 100 200

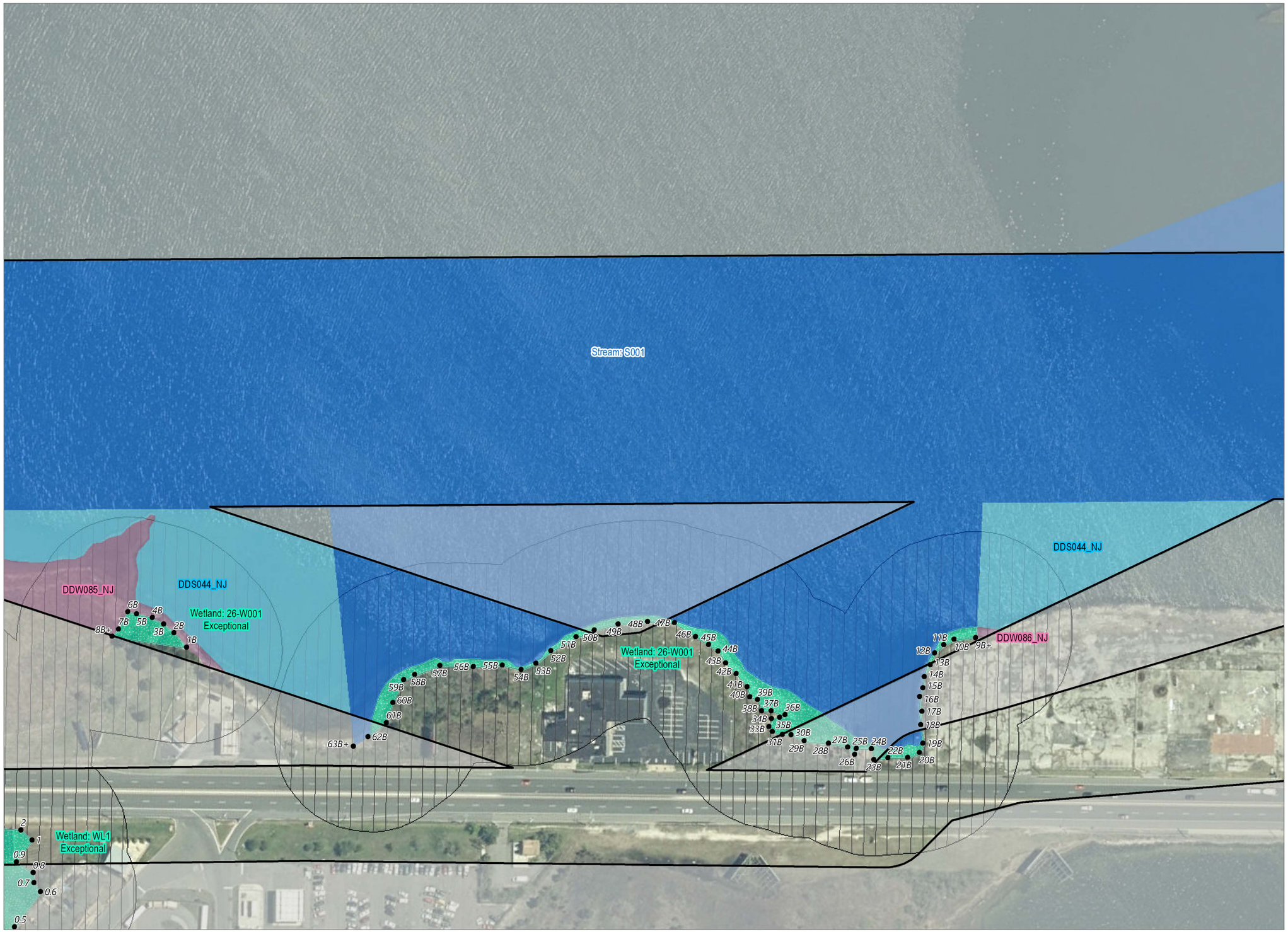
Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area
- Desktop Delineated Stream
- Desktop Delineated Wetland

0 50 100 200

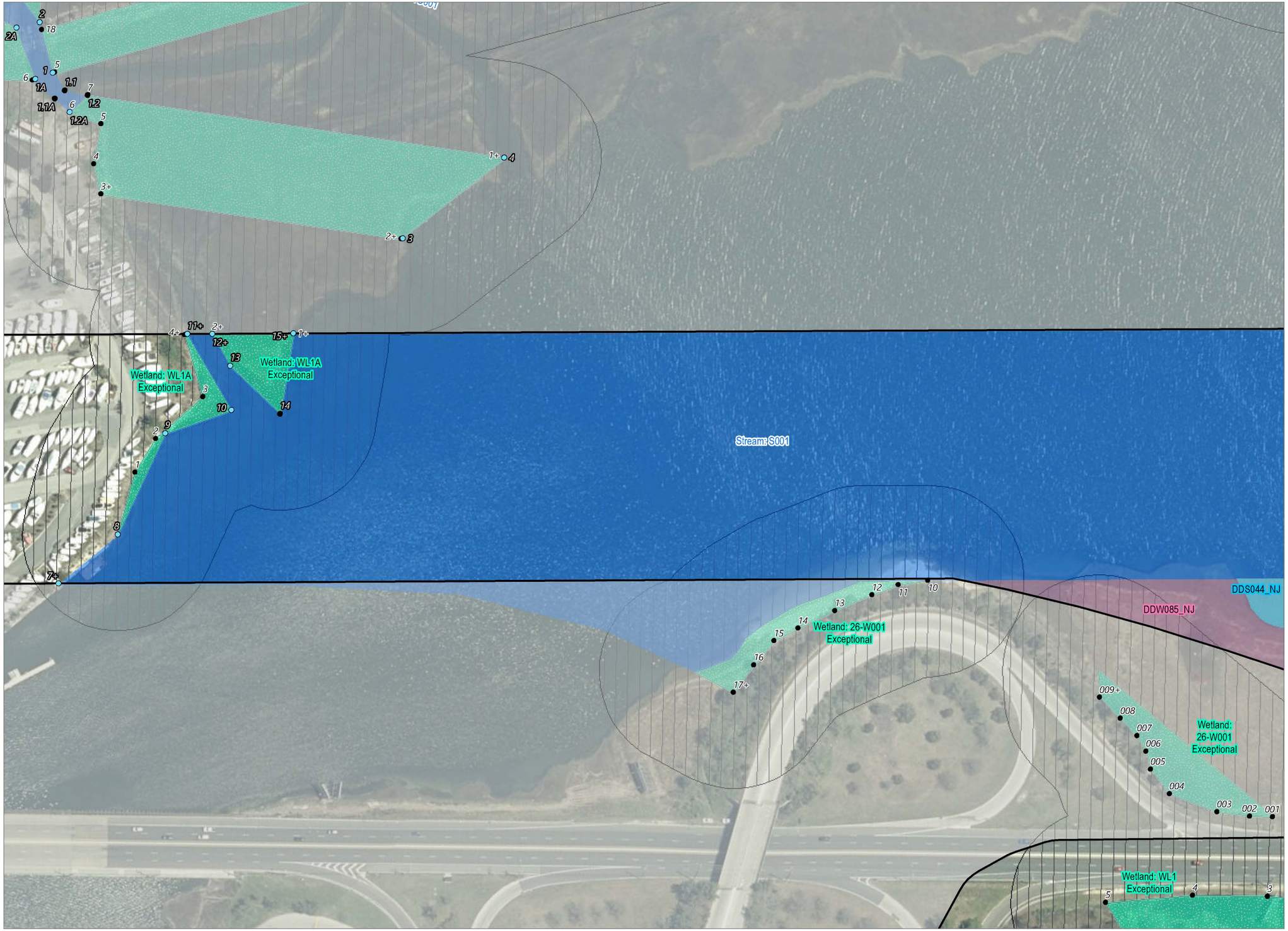
Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

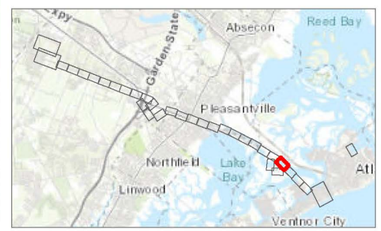


Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area
- Desktop Delineated Stream
- Desktop Delineated Wetland



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Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area
- Desktop Delineated Wetland

0 50 100 200

Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area
- Desktop Delineated Wetland

0 50 100 200

Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report

- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area
- Desktop Delineated Wetland

0 50 100 200

Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

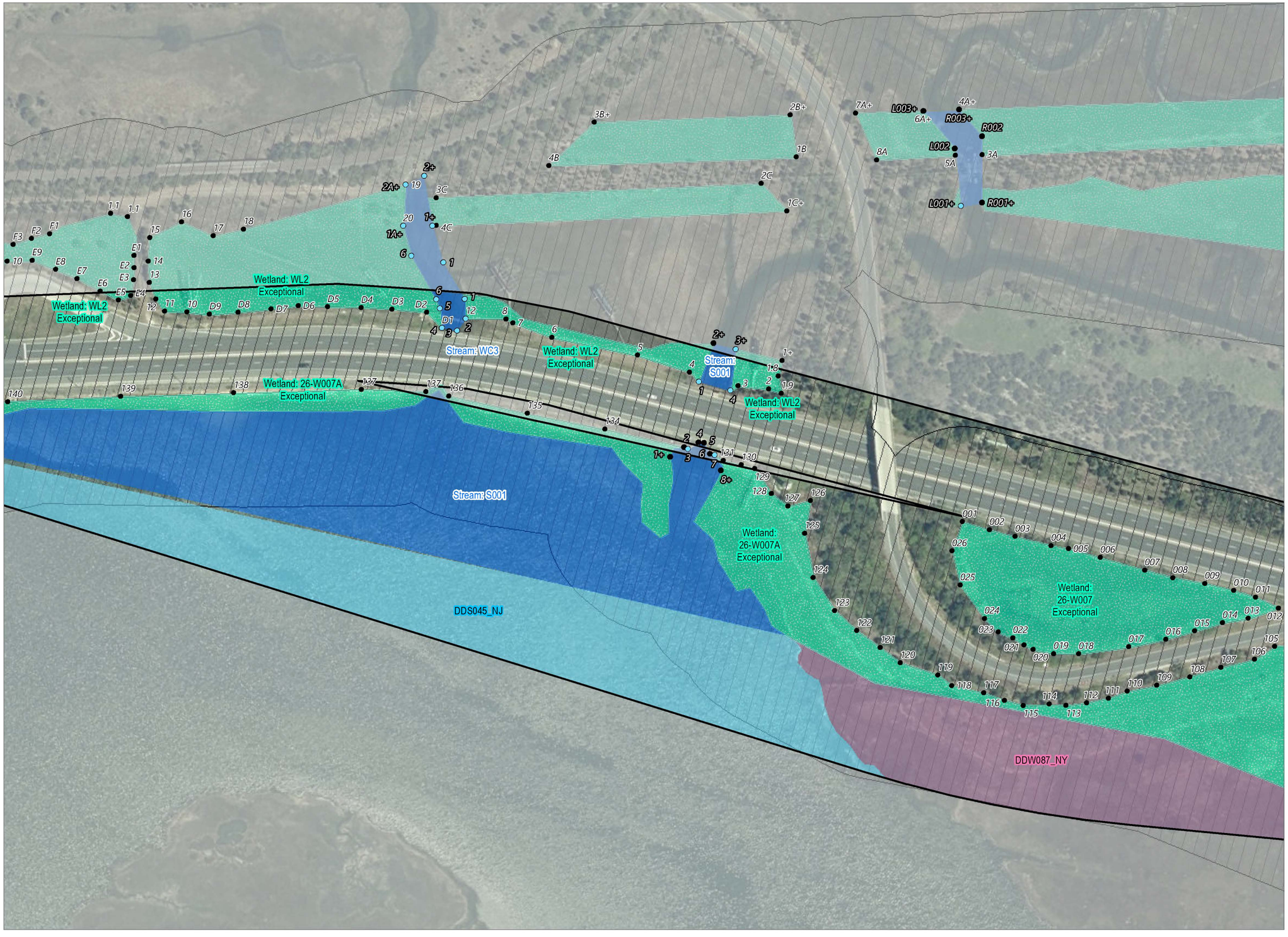
ATLANTIC SHORES offshore wind

EDR

Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

Wetland Delineation Report



- Stream Flag
- Wetland Flag
- Study Area
- Delineated Stream
- Delineated Wetland
- Wetland Transition Area
- Desktop Delineated Stream
- Desktop Delineated Wetland

0 50 100 200

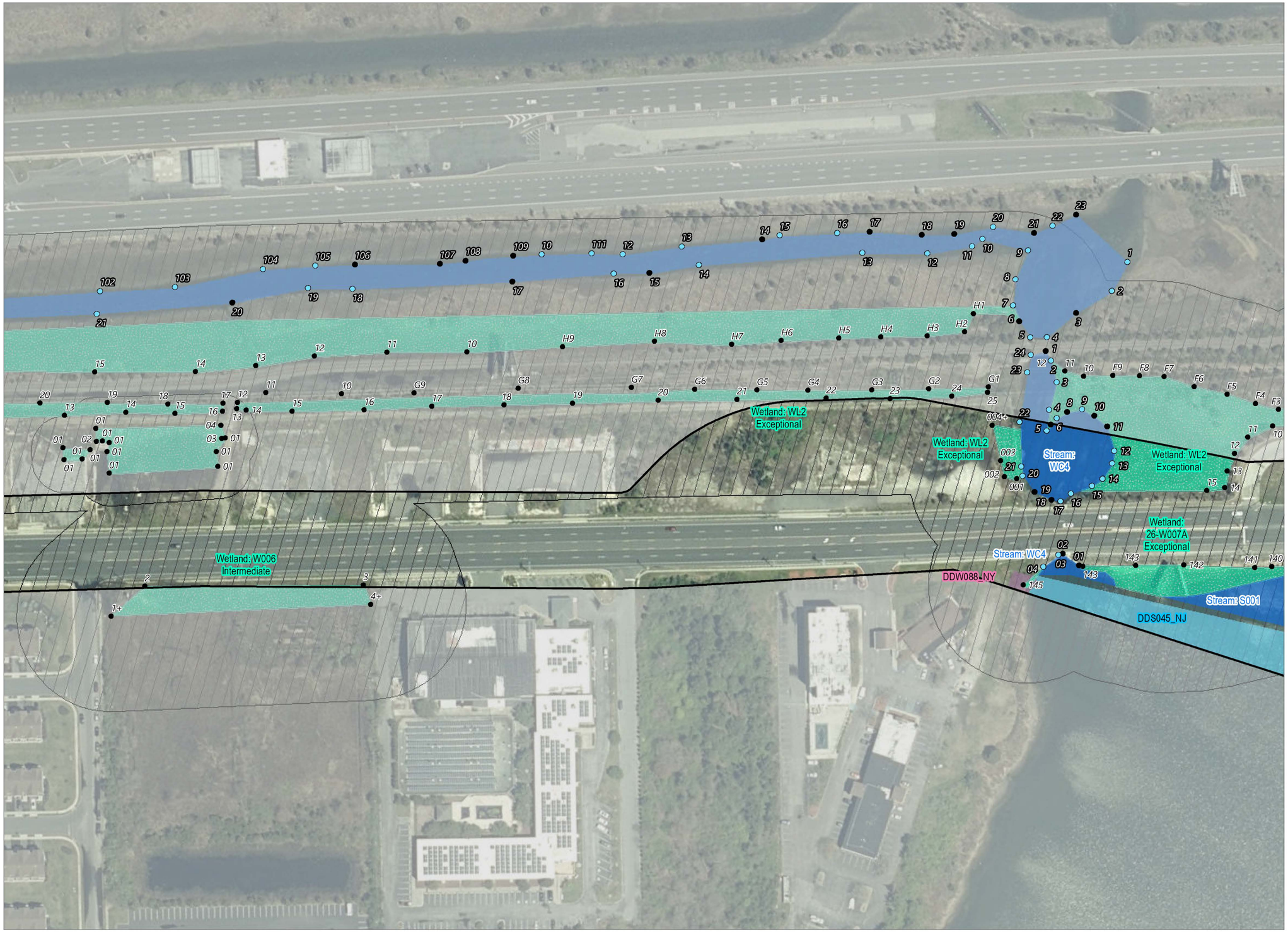
Feet

Prepared December 8, 2023

Basemap: NJ Office of GIS 2015 Natural Color Imagery

ATLANTIC SHORES offshore wind

EDR



Atlantic Shores South Offshore Wind – Cardiff and O&M Facility Study Areas

City of Atlantic City, City of Pleasantville, and Egg Harbor Township, Atlantic County, New Jersey

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Feet

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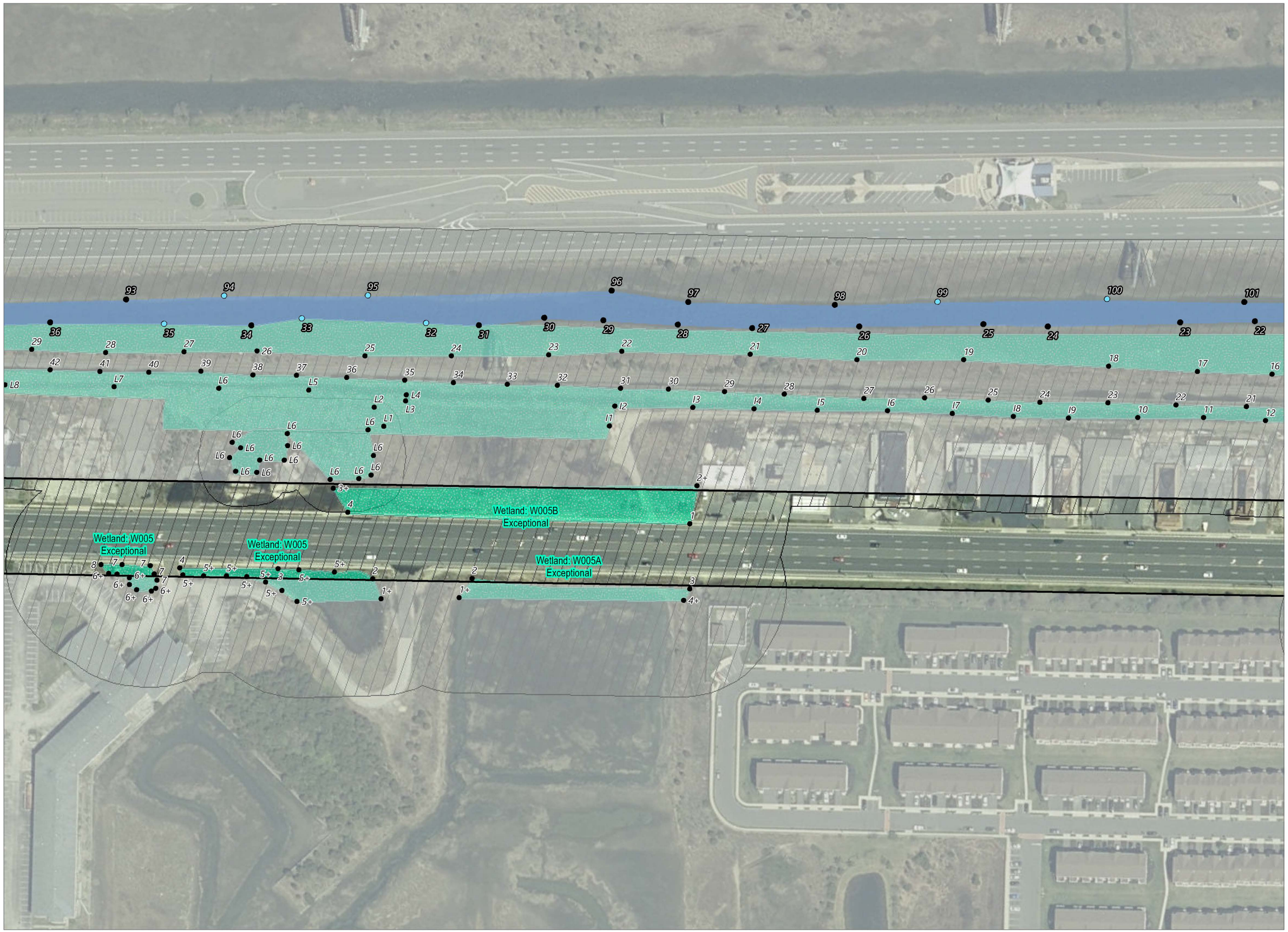

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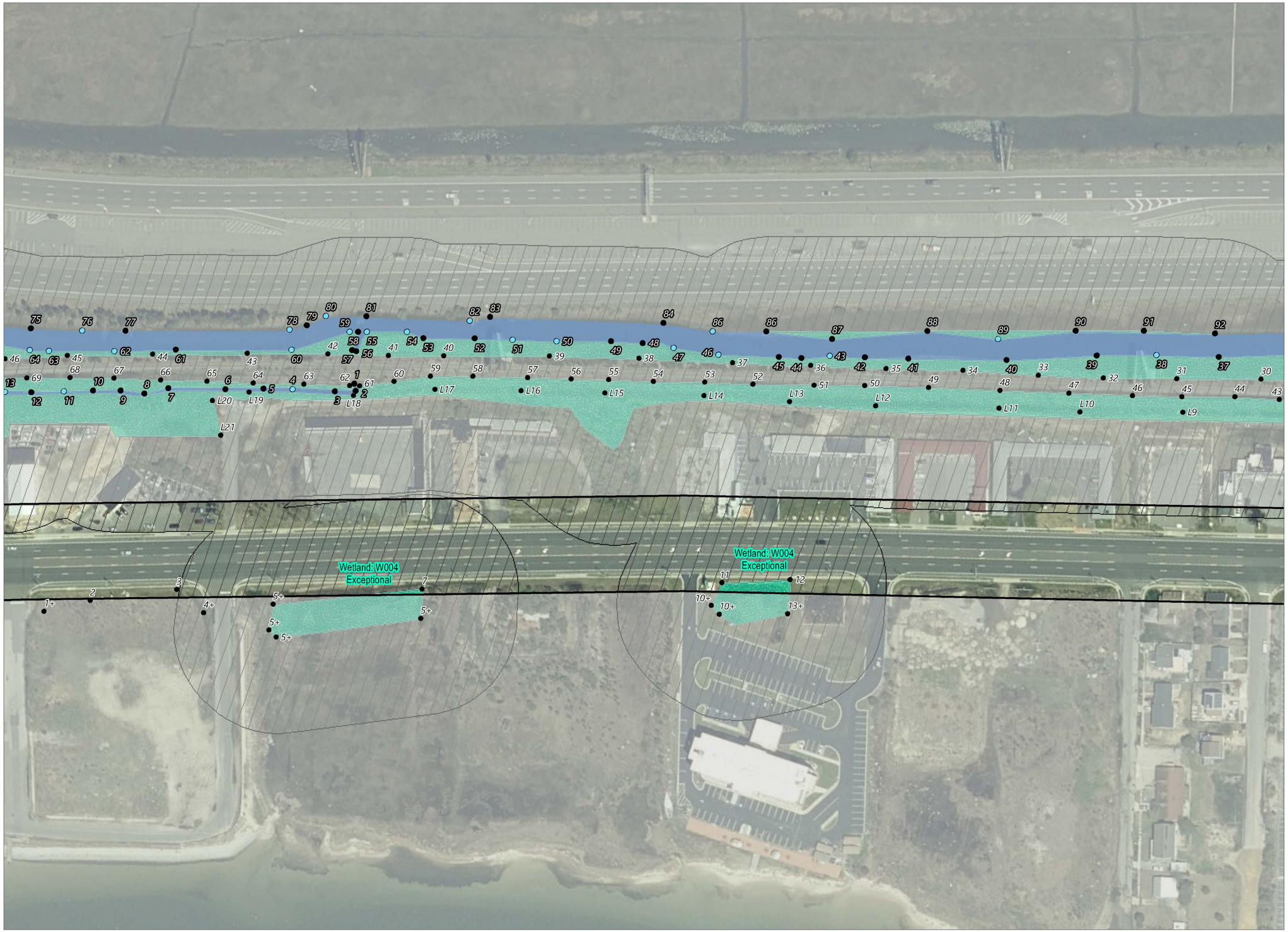

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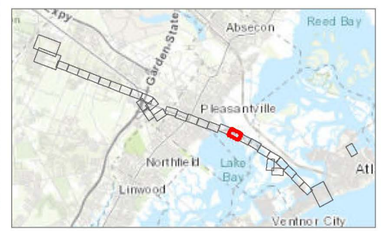

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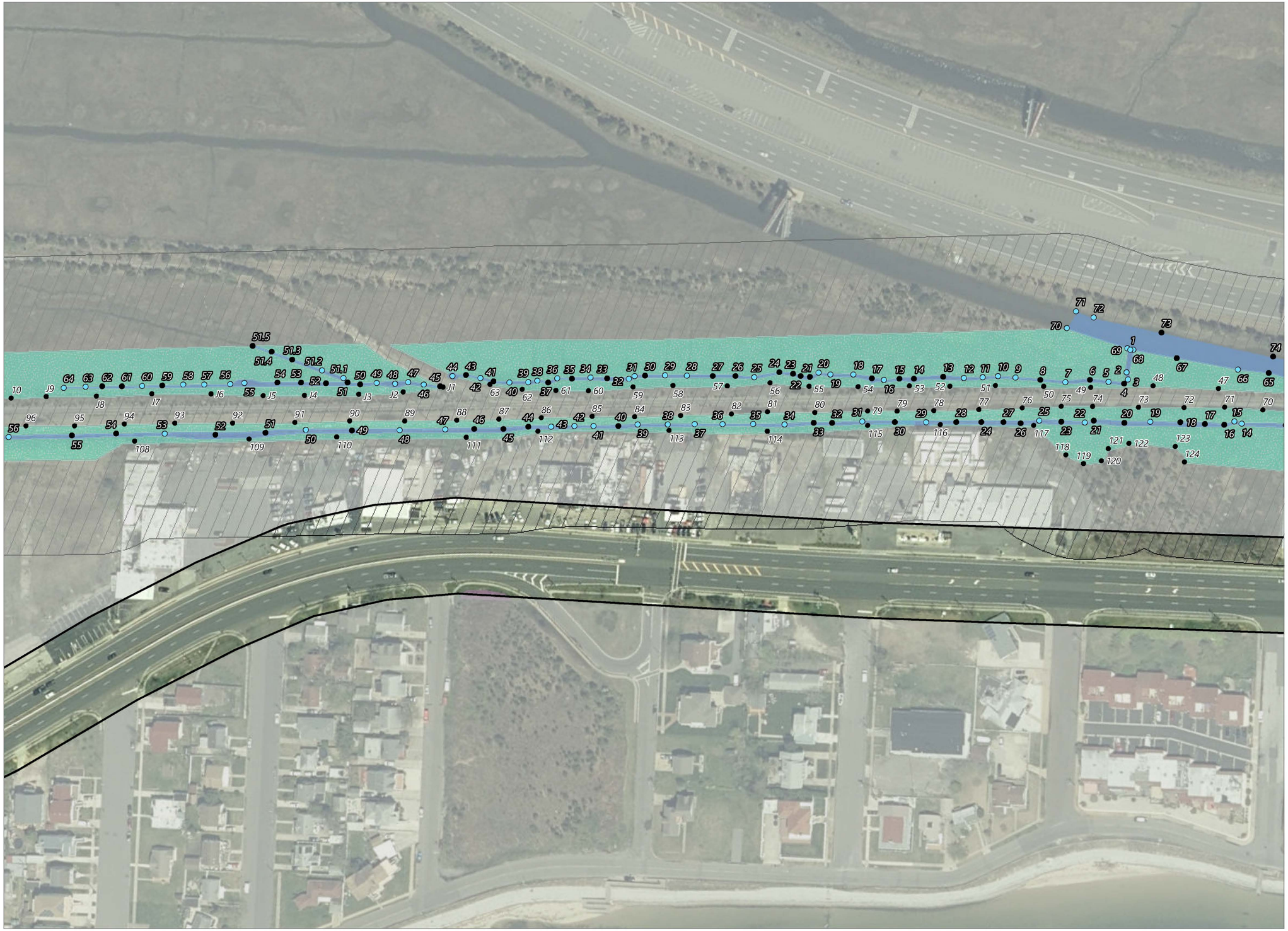

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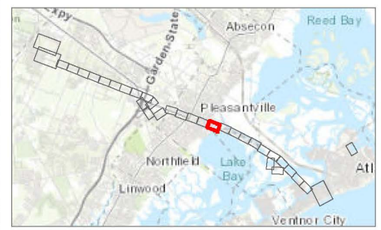

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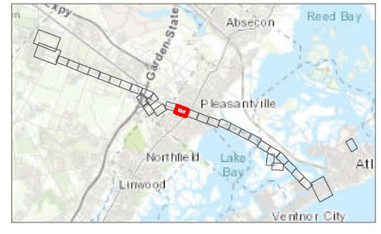

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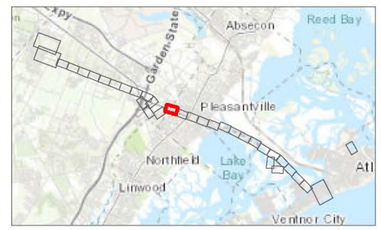

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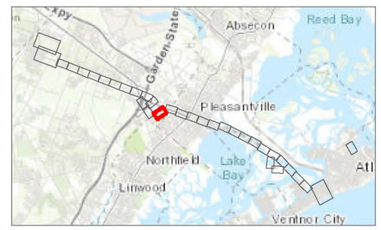

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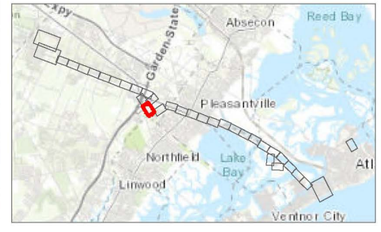

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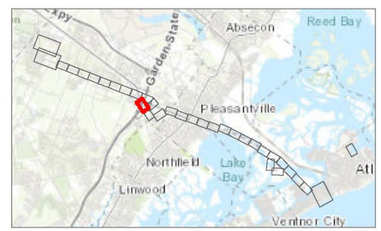

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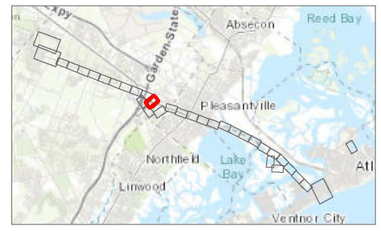

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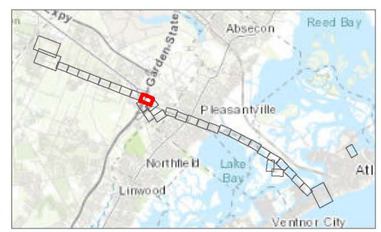

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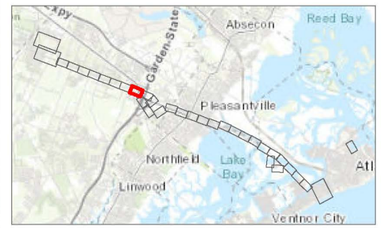

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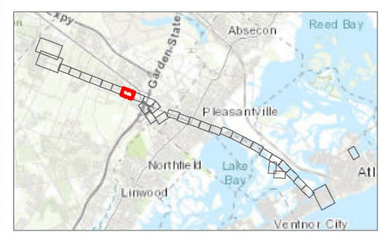

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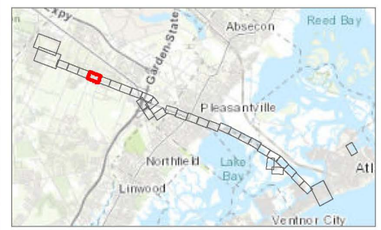

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