Ocean Wind
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Supplemental Wetland Reports

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Oyster Creek

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Ocean Wind - Oyster Creek

Supplemental Wetland and Watercourse Delineation Report

Oyster Creek Export Cable Route Alternatives- Block 97, Lot 4; Block 97, Lot 3; Block 41, Lot 40.02; Block 41, Lot 2; Block 141, Lot 4.02; Block 99, Lot 3; Lighthouse Drive road ROW

Ocean Wind
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Document Version

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1. Project Description

Ocean Wind LLC (Ocean Wind), a subsidiary of Ørsted Wind Power North America LLC (Ørsted) [formerly Dong Energy Wind Power (U.S.) Inc.] is developing the Ocean Wind Offshore Wind Farm Project (OCW01) pursuant to the Bureau of Ocean Energy Management (BOEM) requirements for the commercial lease of submerged lands for renewable energy development on the outer continental shelf (Lease Area OCS-A-0498). Ocean Wind intends to develop, build, operate, and own (through one or more affiliated special purpose entities) a utility-scale offshore wind farm located approximately 15 miles off the coast of New Jersey within the OCS-A 0498 Lease area (the "Project") (Figure 2.1-1).

As a part of Project development, Ocean Wind is looking to best utilize the available points of interconnection to the onshore grid. One point of interconnection is "Oyster Creek" which includes the Oyster Creek Generating Station (OCGS), where the proposed Onshore Substation is located. Ocean Wind 1 planned to make landfall at a property north of Oyster Creek (the Holtec property) and site the cable largely within that property from landfall to the proposed substation. However, it became necessary to consider additional alternatives. To support the evaluation of alternative landfalls and onshore export cable routes, a wetland/watercourse delineation and ecological community assessment was completed within the Oyster Creek Supplemental Wetland Review Area in 2022 (OC SWRA).

The OC SWRA encompasses an area in Ocean Township and Lacey Township in Ocean County, NJ (Figure 2.1-1). The OC SWRA includes road ROWs and parcels associated with the proposed alternative export cable routes and landfall locations. Public and private access roads with SWRA along the alternative ECR routes include Bay Parkway and Lighthouse Drive, in Ocean Township as well as private paved roads at the JGS Waretown property (Block 41, Lot 40.02) and an Ocean Township parcel (Block 41, Lot 2). Landfall parcels include the Nautilus landfall at 6 and 8 Pirate Drive (Block 97, Lots 3 and 4), the Holiday Beach Club parcel at the Lighthouse drive landfall (Block 99, Lot 3) and the marina landfall (Block 141, Lot 4.02) (Figure 2.1-1).

Figure 2.1-1 Project Overview

2. Methods

HDR Engineering, Inc. (HDR) delineated the boundaries of wetlands and watercourses within the OC SWRA in two phases, Desktop Review and Field Survey, as described below.

2.1 Desktop Review

Prior to conducting the wetland and watercourse delineation, relevant materials were reviewed and are included as attachments for reference:

- NJDEP Watershed Management Area Map
- New Jersey State Department of Environmental Protection (NJDEP) Wetlands Map
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map
- U.S. Department of Agriculture (USDA) Natural Resources Conservation (NRCS) Web Soil Survey (WSS) Custom Soil Resource Report (**Attachment A**)
- Federal Emergency Management Agency (FEMA) 2013 Preliminary Working Data Flood Insurance Rate Maps (FIRM)

2.2 Field Survey

On May 5 and 6, 2022, the boundaries of the wetlands and watercourses within select parcels of the Oyster Creek onshore export cable route were delineated (Block 41, Lot 2; Block 41, Lot 40.02; Block 97, Lot 4; Block 97, Lot 3). On June 1, 2022, the boundaries of wetlands and watercourses within Block 141, Lot 4.02 were delineated and the wetlands within the Lighthouse Drive road right-of-way were assessed (Figure 3.2-1). On July 6, 2022, wetlands within the Holiday Beach Club (Block 99, Lot 3) were delineated.

All delineations used the three-parameter methodology described in the 1987 United States Army Corps of Engineers (USACE) wetland delineation manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Atlantic and Gulf Coastal Plain Region (USACE 2010). The lines were walked and verified based on the three-parameter approach (soils, vegetation, and hydrology) described in the 1989 Federal Interagency Manual. Upland and wetland observation points were recorded for each delineated wetland. Watercourses were delineated using the indicators of the ordinary high-water mark as described in Regulatory Guidance Letter 05-05 (USACE 2005). Mapped wetland observation locations were surveyed at the time of delineation by a New Jersey licensed professional land surveyor. Photographs of the site, wetland observation soil pits, and vegetation were taken and are included in **Attachment B**. Wetland delineation data sheets are included in **Attachment C**.

3. Results

3.1 Desktop Review

The OC SWRA is within the NJDEP Barnegat Bay Watershed Management Area (WMA-13) (Figure 3.1-1). The Barnegat Bay Watershed covers over 600 square miles, its characteristics varying from coastal dunes and marshes to developed lands. An array of environmentally sensitive habitats exists here, such as sand beaches, bay islands, submerged aquatic vegetation, finfish nursery areas, shellfish beds, and waterfowl nesting grounds.

The OC SWRA crosses Oyster Creek and associated wetlands west of Route 9. According to the NJDEP's Surface Quality Standards (N.J.A.C. 7:9B, adopted amendments N.J.A.C. 7:9B-1.15), Oyster Creek is

classified as FW2-NT/SE1 waters. Designated uses for this classification include maintenance, migration and propagation of the natural and established biota, primary contact recreation, industrial and agricultural water supply, public potable water supply after conventional filtration treatment, migration of diadromous fish, and secondary contact recreation.

The OC SWRA contains wooded wetlands (mixed, coniferous, Atlantic white cedar), disturbed tidal wetlands, and *Phragmites* dominated coastal wetlands based on the NJ Geoweb NJDEP Wetlands Land Use/Land Cover 2012 Update Layer (Figure 3.1-2).

The USFWS NWI map classifies wetlands within the OC SWRA on the western side of Route 9 as freshwater forested/shrub wetlands (PFO4/1C, PFO4Eg, PFO4Cg, PFO1B) and freshwater emergent wetlands (PEM1Fh). The USFWS NWI map classifies wetlands within the OC SWRA on the eastern side of Route 9 as estuarine and marine wetlands (E2EM1P, E2EM5Pd) (Figure 3.1-3).

The USDA WSS report indicates the majority of soil map units within the OC SWRA are classified as Lakehurst sand, Berryland sand, Manahawkin muck, and Psammaquents (**Attachment A**). Lesser amounts of mapped soils include Appoquinimink-Transquaking Mispillion complex, Atsion sand, Pits, Psamments, Herring Creek mucky silt loam, Trappe sand, and Truitt-Southpoint complex. Lakehurst sand soils are non-hydric, moderately well drained, and found on flats and dunes. Berryland sand soils are hydric soils, very poorly drained, and are found in flats, depressions, and drainageways. Manahawkin muck soils are frequently flooded, hydric, and found in swamps and floodplains. These soils are typical of freshwater channels adjacent to tide water. Psammaquents are frequently flooded, hydric, very poorly drained, and found on flat landforms. The acreage, percent composition, soil series, and hydric rating for soil map units are presented in Table 3.1-1. A U.S. Department of Agriculture Custom Soil Resource Report is provided in **Attachment A**.

FEMA floodplain maps (FEMA 2015 Preliminary Work Map Data) showed that the OC SWRA near Oyster Creek and Barnegat Bay is within Special Flood Hazard Area Zones AE (1% Annual Chance Flood Hazard) and X (0.2% Annual Chance Flood Hazard). Most of the proposed OC SWRA is within Special Flood Hazard Area Zone X (Area of minimal flood hazard). Figure 3.1-4 illustrates the extents of the FEMA PFIRM flood hazard zones.

Table 3.1-1. Soil Map Units within the Wetland Review Area

Map Unit Symbol	Map Unit Name	Percent of Site	Soil Series Component	% Component	Hydric Rating
LakB	Lakehurst sand, 0 to 5 percent slopes	41.1%	Lakehurst and similar soils	85%	No
			Minor components	15%	Yes/ No
PstAt	Psamments, 0 to 2 percent slopes	18.3%	Psammaquents, sulfidic substratum, frequently flooded, and similar soils	85%	Yes
			Minor components	15%	Yes
BerAr	Berryland sand, 0 to 2 percent slopes, rarely flooded	14.3%	Berryland, rarely flooded, and similar soils	85%	Yes
			Minor components	15%	Yes
MakAt	Manahawkin muck, 0 to 2 percent slopes, frequently flooded	10.5%	Manahawkin, frequently flooded, and similar soils	85%	Yes
			Minor components	15%	Yes
AptAv	Appoquinimink-Transquaking-Mispillion complex, 0 to 1 percent slopes, very frequently flooded	4.4%	Appoquinimink, very frequently flooded, and similar soils	40%	Yes
			Transquaking, very frequently flooded, and similar soils	30%	Yes
			Mispillion, very frequently flooded, and similar soils	25%	Yes
			Minor components	5%	No
AtsAO	Atsion sand, 0 to 2 percent slopes, Northern Tidewater Area	4.1%	Atsion and similar soils	90%	Yes
			Minor components	10%	Yes/ No
WHe1	Herring Creek mucky silt loam, 0 to 1 meter water depth	3.0%	Herring creek, 0 to 1 meter water depth, and similar soils	85%	Yes
			Minor components	15%	Yes
PssA	Psamments, 0 to 2 percent slopes	2.3%	Psamments, nearly level, and similar soils	85%	No
			Minor components	15%	Yes
WDC4	Dredge Channel, 1 to 4 meter water depth	1.1%	Water, dredge channel	100%	Yes
Water	Water	0.5%	Water	100%	N/A
PHG	Pits, sand and gravel	0.4%	Pits, sand and gravel	100%	No
WTs2	Truitt-Southpoint complex, 1 to 2 meter water depth	0.1%	Truitt, 1 to 2 meter water depth, and similar soils	40%	Yes
			Southpoint, 1 to 2 meter water depth, and similar soils	35%	Yes
			Minor components	25%	Yes
Totals for Site		**100.0%**			

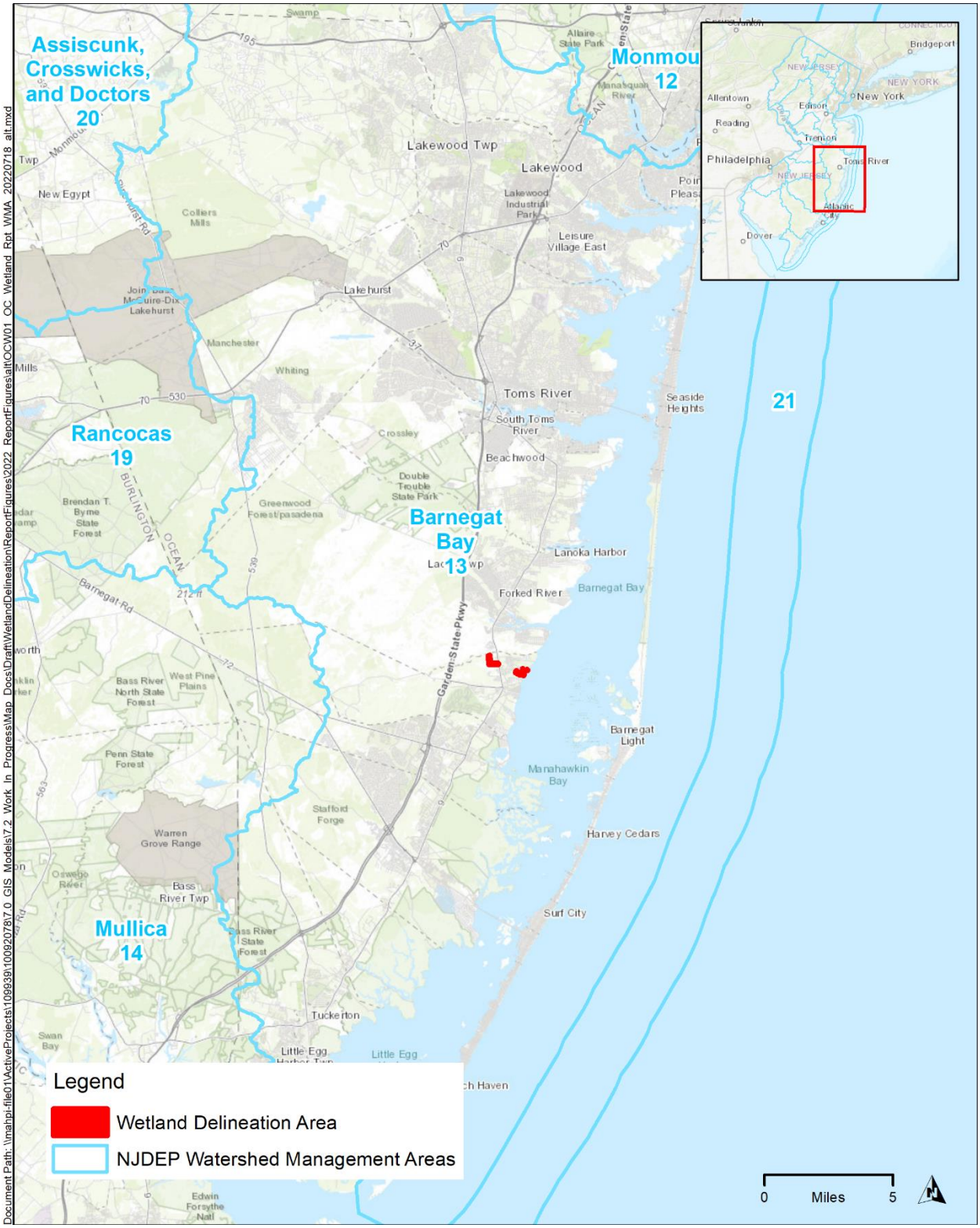

Figure 3.1-1 NJDEP Watershed Management Areas Map

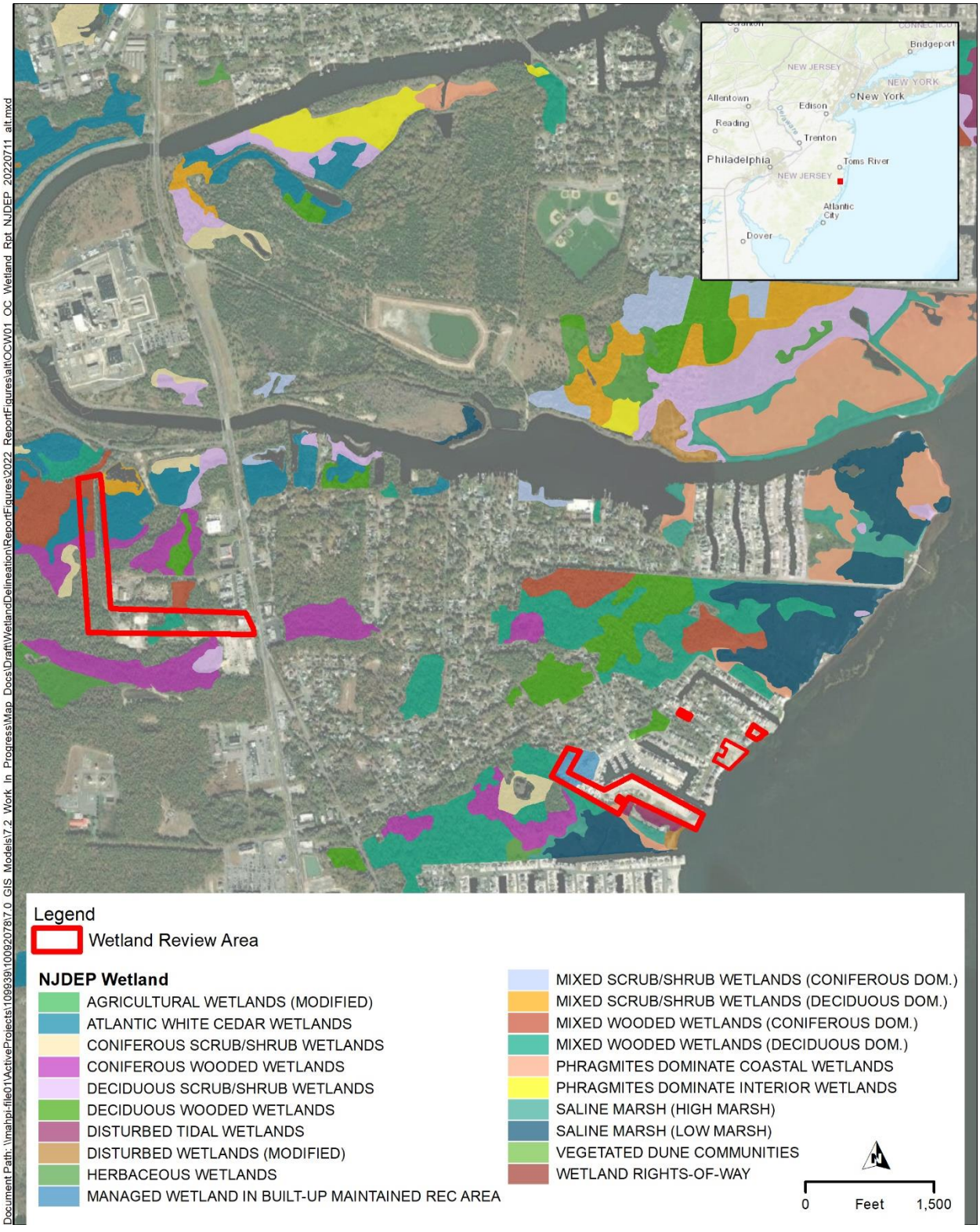

Figure 3.1-2 NJDEP Wetlands Map – OC SWRA

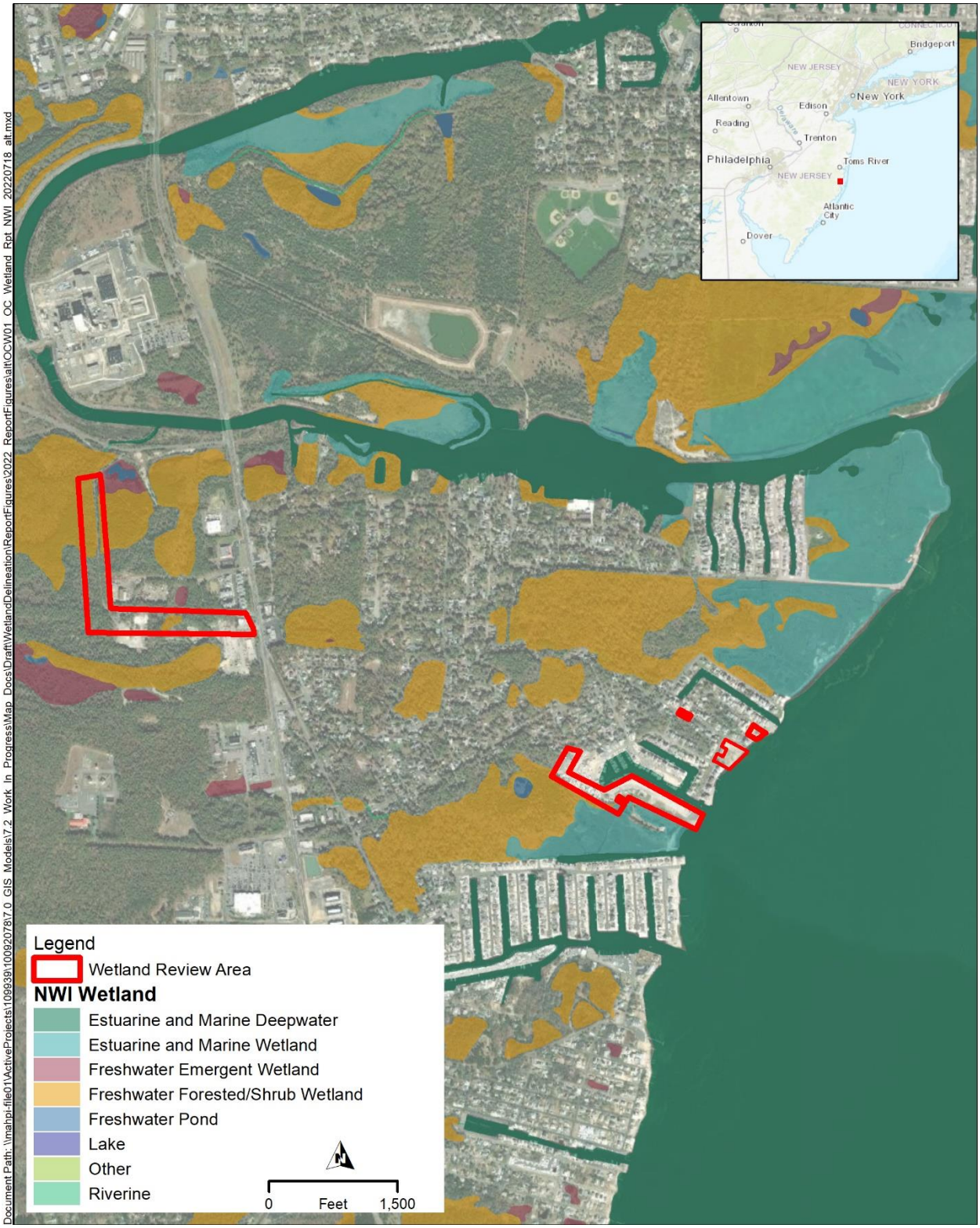

Figure 3.1-3 NWI Wetlands Map – OC SWRA

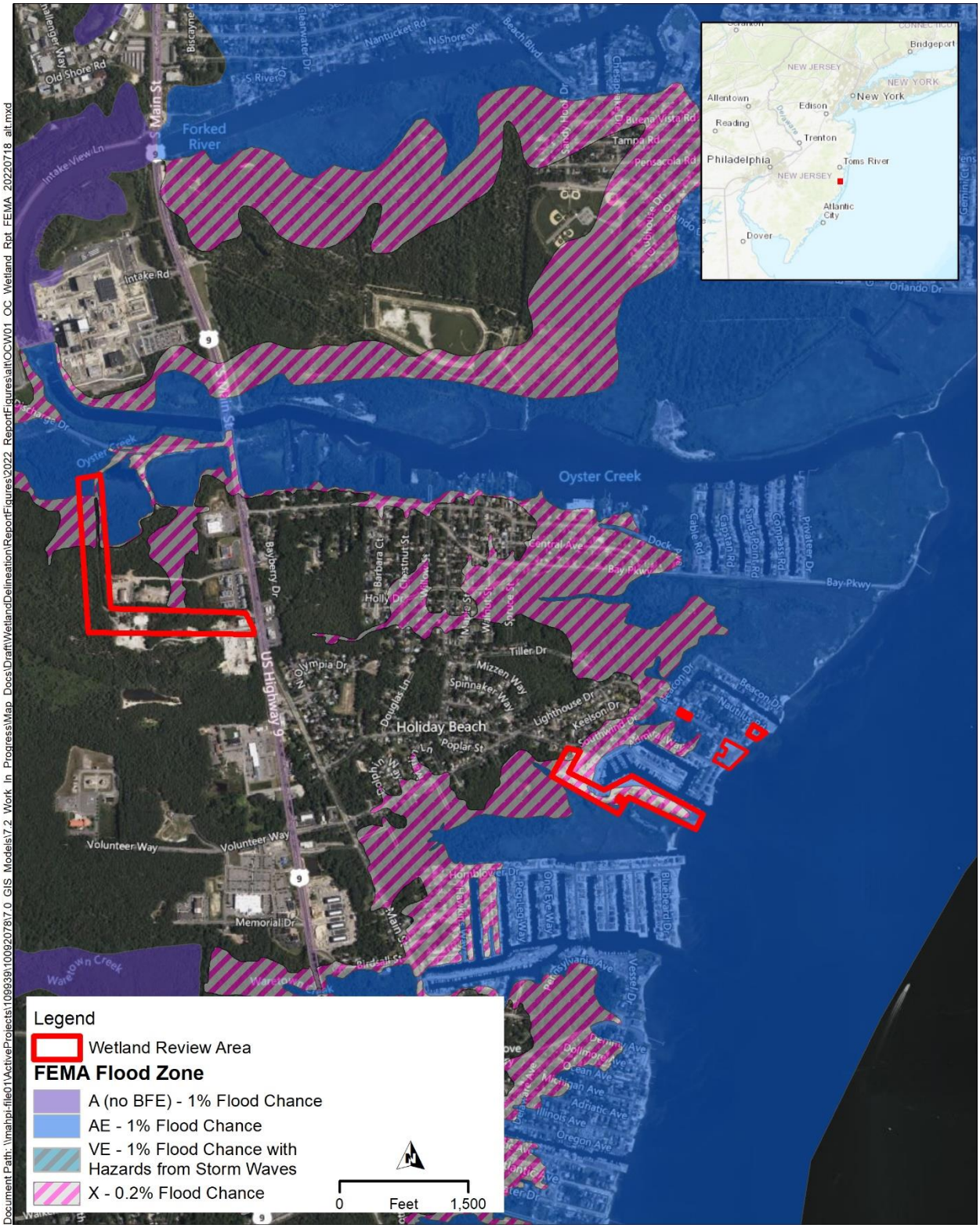

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Figure 3.1-4 FEMA PFIRM Flood Hazard Area Map – OC SWRA

3.2 Wetland Delineation Field Survey

Three palustrine forested wetlands, one estuarine/ marine wetland, and one palustrine and estuarine/marine wetland complex were delineated within the OC SWRA, comprising an area of 5.57 acres. The delineated wetlands are shown in Figure 3.2-1**.** Wetland delineation data sheets for upland and wetland observation points are included in **Attachment C**. These wetlands are described in detail below.

Wetland A – The area delineated as Wetland A is a 0.03-acre estuarine/ marine wetland within the workspace for the Nautilus landfall. Wetland A is bounded to the west by a disturbed upland area along Pirate Drive, to the north by Nautilus Road, to the south by a bulkhead and upland vegetation, and to the east by a berm separating it from Barnegat Bay. Wetland A is not identified as a wetland by NWI. Dominant species in the wetland area include groundseltree (*Baccharis halimifolia*) FAC*,* seaside goldenrod (*Solidago sempervirens*) FACW*,* and saltmeadow cordgrass (*Spartina patens*) FACW*.* These dominant species are all indicative of wetland vegetation based on the dominance test and the prevalence index. Soils in Wetland A are indicative of hydric soils due to the presence of sandy redox (S5). Hydrology indicators include a high water table (10 inches below surface) and saturation (3 inches below surface). A summary of wetland indicators is provided in Table 3.2-1.

Data was collected at an upland observation point outside of Wetland A. No hydrophytic vegetation, hydric soil, or hydrology indicators were present. The dominant species within the upland area is American beachgrass (*Ammophila breviligulata*) UPL. Although saturation was present 16 inches below the surface, hydrology indicators were not present.

Wetland B – The area delineated as Wetland B is a 0.59-acre freshwater forested broad-leaved deciduous wetland based on Cowardin et al. (1979), located within the JGS Waretown parcel west of Route 9. Wetland B is bounded to the east by upland forest and commercial property, to the south by a gravel access road, to the north by a paved access road, and to the west by a storage area for landscaping material. Wetland B receives inflow from Watercourse A. Wetland B is identified as “PF01B” (Palustrine Forested, Broad-Leaved Deciduous Vegetation, Seasonally Saturated) by NWI and a mixed wooded wetland (deciduous dominated) by NJDEP 2012 Land Use/Land Cover mapping. Dominant species found during survey include red maple (*Acer rubrum*) FAC, pitch pine (*Pinus rigida*) FACU, catbrier (*Smilax bona-nox*) FAC, tussock sedge (*Carex stricta*) OBL, and common reed (*Phragmites australis)* FACW*.* These dominant species are all indicative of wetland vegetation based on the dominance test and the prevalence index. Soils in Wetland B are indicative of hydric soils due to the presence of sandy redox (S5). Hydrology indicators include a high water table (3 inches below surface), saturation at the surface, water marks, and water-stained leaves. A summary of wetland indicators is provided in Table 3.2-1.

Data was collected at an upland observation point outside of Wetland B. No hydrophytic vegetation, hydric soil, or hydrology indicators were observed. Dominant species within the upland area included pitch pine (*Pinus rigida*) FACU, northern bayberry (*Morella pennsylvanica*) FACU, and Virginia creeper (*Parthenocissus quinquefolia*) FACU.

Wetland C – Wetland C is located within the Ocean Township parcel west of Route 9 and abuts a paved access road to the east that runs through the property and bisects Wetland C from Wetland D. The area delineated as Wetland C is part of a large wetland system associated with Oyster Creek Tributary in the northern portion of the wetland. The area delineated as Wetland C is 3.32 acres. Wetland C is a palustrine forested wetland based on Cowardin et al. (1979). Wetland C is classified as “PFO4Eg” (Palustrine, Forested, Needle-Leaved Evergreen, Seasonally Flooded/ Saturated, Organic soil) and “PFO4/1C” (Palustrine, Forested, Needle-Leaved Evergreen/ Broad-leaved Deciduous, Seasonally Flooded) by NWI. NJDEP 2012 Land

Use/Land Cover mapping depicts Wetland C as coniferous wooded wetlands to the south, and mixed wooded wetlands (Coniferous dominated) to the north. Wetland C is dominated by red maple *(Acer rubrum)* FAC, pitch pine (*Pinus rigida*) FACU, sweet pepperbush (*Clethra alnifolia*) FACW, and inkberry (*Ilex glabra*) FACW. These dominant species are all indicative of wetland vegetation based on the dominance test and the prevalence index. Soils in the wetland are indicative of hydric soils due to the presence of hydrogen sulfide odors (A4). Hydrology indicators include a high water table (10 inches below surface), saturation (4 inches below surface), water marks, and water-stained leaves. A summary of wetland indicators is provided in Table 3.2-1.

Data was collected at an upland observation point outside of Wetland C. No hydric soil or hydrology indicators were observed. Dominant species within the upland area included red maple (*Acer rubrum*) FAC, Atlantic white cedar (*Chamaecyparis thyoides*) OBL, sweet pepperbush (*Clethra alnifolia*) FACW, catbrier (*Smilax bona-nox*) FAC, and Virginia creeper (*Parthenocissus quinquefolia*) FACU. Based on the dominance test, hydrophytic vegetation is present.

Wetland D – The area delineated as Wetland D is 0.85 acres and is located within the Ocean Township parcel west of Route 9. Wetland D is a palustrine forested wetland based on Cowardin et al. (1979). Wetland D is identified as “PFO4Cg” (Palustrine, Forested, Needle-Leaved Evergreen, Seasonally Flooded, Organic soil) by NWI. NJDEP 2012 Land Use/Land Cover mapping depicts Wetland D as predominantly Atlantic white cedar wetlands, coniferous wooded wetlands to the south, and mixed shrib/scrub wetlands (deciduous ominated) to the north. Wetland D is dominated by Atlantic white cedar (*Chamaecyparis thyoides*) OBL, pitch pine (*Pinus rigida*) FACU, inkberry (*Ilex glabra*) FACW, sweet pepperbush (*Clethra alnifolia*) FACW, Solomon’s seal (*Polygonatum biflorum*) FACU, and tussock sedge (*Carex stricta*) OBL. These dominant species are all indicative of wetland vegetation based on the dominance test and the prevalence index. Soils in Wetland D are indicative of hydric soils due to the hydrogen sulfide (A4) and muck presence (A8). Hydrology indicators include a high water table (1 inch below surface), saturation at surface, and water stained leaves. A summary of wetland indicators is provided in Table 3.2-1.

Data was collected at an upland observation point outside of Wetland D. No hydric soil or hydrology indicators were observed. Dominant species within the upland area include Atlantic white cedar (*Chamaecyparis thyoides*) OBL, pitch pine (*Pinus rigida*) FACU, sweet pepperbush (*Clethra alnifolia*) FACW, and partridgeberry (*Mitchella repens*) FACU. Based on the dominance test, hydrophytic vegetation is present.

Wetland E – Wetland E is located along the southern border of a marina property proposed as the marina landfall, is bordered by Barnegat Bay to the east, Fresh Creek to the south, and a large wetland system abutting residential properties to the west. The wetlands area delineated as Wetland E is 0.66 acres. Wetland E is classified as “E2EM1P” (Estuarine Intertidal Emergent Persistent Irregularly Flooded) and “E2EM5Pd” (Estuarine Intertidal Emergent *Phragmites australis* Irregularly Flooded Partially Drained/ Ditched) by NWI. NJDEP 2012 Land Use/Land Cover mapping depicts Wetland E as Phragmites dominated coastal wetlands, disturbed tidal wetlands, and mixed wooded wetlands (deciduous dominated). Wetland E is dominated by black gum (*Nyssa sylvatica*) FAC, northern bayberry (*Morella pensylvanica*) FAC, hedge bindweed (*Calystegia sepium*) FAC, and common reed (*Phragmites australis*) FACW. These dominant species are all indicative of wetland vegetation based on the dominance test and the prevalence index. Soils in Wetland E are indicative of hydric soils due to hydrogen sulfide (A4) and sandy gleyed matrix (S4). Hydrology indicators include a high water table (15 inches below surface), saturation at surface, and drift deposits. A summary of wetland indicators is provided in Table 3.2-1.

Data was collected at an upland observation point outside of Wetland E. No hydric soils, vegetation, or hydrology indicators were observed. Dominant species within the upland area include pitch pine (*Pinus rigida*)

FACU, white oak (*Quercus alba*) FACU, black gum (*Nyssa sylvatica*) FAC, high bush blueberry (*Vaccinium corymbosum*) FACW, and greenbrier (*Smilax rotundifolia*) FAC.

Wetland F – The area delineated as Wetland F is 0.12 and is located along the southern boundary of the Holiday Beach Club property at the Lighthouse Drive landfall. Wetland F is bounded by Admiral Way and residential property to the south, Shore Drive to the west, and developed commercial property to the north and east. Wetland F has not been identified by NWI or NJDEP Land Use/Land Cover mapping. The dominant vegetation is common reed (*Phragmites australis*) FACW. This dominant species is indicative of wetland vegetation based on the dominance test and prevalence index. Soils in Wetland F are indicative of hydric soils due to a depleted matrix (F3). Hydrology indicators include saturation (12 inches below surface). A summary of wetland indicators is provided in Table 3.2-1.

Data was collected at an upland observation point outside of Wetland F. No hydric soils, vegetation, or hydrology indicators were observed. The upland area was open sand adjacent to a picnic area and playground, therefore no vegetation was observed.

Lighthouse Drive – The 0.001-acre wetland located on Lighthouse Drive perpendicular to Nautilus Road is within the Lighthouse Drive road ROW. It is bordered by Lighthouse Drive to the north, residential properties to the east and south, and a utility property to the west. The wetland has not been identified by NWI or NJDEP Land Use/Land Cover mapping. The dominant vegetation is common reed (Phragmites australis) FACW. This dominant species is indicative of wetland vegetation based on the dominance test and prevalence index. Soils in the Lighthouse Drive wetland hydric due to the presence of histosol (A1) and hydrogen sulfide (A4) indicators. Hydrology indicators include surface water (0.5 to 2 inches below surface), a high water table (6 inches below surface), saturation, and water stained leaves. A summary of wetland indicators is provided in Table 3.2-1.

Table 3.2-1. Summary of Wetland Delineation Field Survey Results

Wetland ID	Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicator	Size (Acres)	Cowardin Classification
Wetland A	High water table (A2), saturation (A3)	*Baccharis halimifolia (FAC), Solidago sempervirens (FACW), Spartina patens (FACW)*	Sandy redox (S5)	0.03	None
Wetland B	High water table (A2), saturation (A3), water marks (B1), water-stained leaves (B9)	*Acer rubrum* (FAC), *Pinus rigida* (FACU), *Smilax bona-nox* (FAC), *Carex stricta* (OBL), *Phragmites australis* (FACW)	Sandy redox (S5)	0.59	PF01B
Wetland C	High water table (A2), saturation (A3), water marks (B1), water-stained leaves (B9)	*Acer rubrum* (FAC), *Pinus rigida* (FACU), *Clethra alnifolia* (FACW), *Ilex glabra* (FACW)	Hydrogen sulfide (A4)	3.32	PFO4Eg PFO4/1C
Wetland D	High water table (A2), saturation (A3), water-stained leaves (B9)	*Chamaecyparis thyoides* (OBL), *Pinus rigida* (FACU), *Ilex glabra* (FACW), *Clethra alnifolia* (FACW), *Polygonatum biflorum* (FACU), *Carex stricta* (OBL)	Hydrogen sulfide (A4), Muck presence (A8)	0.85	PFO4Cg
Wetland E	High water table (A2), Saturation (A3), Drift deposits (B3)	*Nyssa sylvatica* (FAC), *Morella pensylvanica* (FAC), *Calystegia sepium* (FAC), *Phragmites australis* (FACW)	Hydrogen sulfide (A4), Sandy gleyed matrix (S4)	0.66	E2EM1P E2EM5Pd
Wetland F	Saturation (A3)	*Phragmites australis* (FACW)	Depleted matrix (F3)	0.12	None
Lighthouse Drive	High water table (A2), saturation (A3), water-stained leaves (B9)	*Phragmites australis* (FACW)	Histosol (A1), Hydrogen sulfide (A4)	0.001	None
			Total	**5.57**	

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Figure 3.2-1 Field Survey Wetland Delineation Map – OC SWRA

3.3 Watercourse Delineation Field Survey

Two watercourses were delineated during the field surveys. The locations of these features are provided in Figure 3.2-1 and the length and area of each watercourse is provided in Table 3.3-1. Watercourse A is a manmade feature with culverts to facilitate flow through commercial property. It is approximately 16 feet in width. Watercourse A is not identified by NWI. Based on review of aerial photography, this watercourse drains west, through wetlands, to Oyster Creek tributary. Oyster Creek Tributary is located at the edge of the Block 41, Lot 2. The stream is approximately 29 feet in width and approximately 2-3 feet deep. During the field survey there was a swift flow to the northeast toward Oyster Creek Channel. The stream was delineated from the northeastern edge of Block 41, Lot 2 to approximately 800 feet downstream. Watercourse B is identified as "R5UBH" (Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded) by NWI. Portions of Watercourses A and B are outside of the OC SWRA. Totals in Table 3.3-1 below include areas within the OC SWRA.

Table 3.3-1. Summary of Watercourse Delineation Field Survey Results

Watercourse	Length (linear ft.)	Area (sq ft)	Abutting Wetland
Watercourse A	360	5,802	B
Oyster Creek Tributary (Watercourse B)	810	23,563	C
Totals for Site	**1,170**	**29,365**	

3.4 Wildlife

While no species-specific wildlife studies were conducted, all wildlife observations made in association with the wetland delineations and ecological community mapping field studies were recorded. Birds were identified by song and/or direct observation, mammals were identified by indicator signs such as scat, and reptiles were identified by direct observation.

Fish – No fish were observed at the time of the site survey.

Amphibians – No amphibians were observed at the time of the site survey.

Reptiles – One eastern fence lizard (*Sceloporus undulated*) was observed in Wetland B on May 5, 2022. Two rough green snakes (*Opheodrys aestivus*) were observed near Wetland C on May 5, 2022. One female box turtle (*Terrapene carolina)* was observed in Wetland E on June 1, 2022.

Birds – A total of 33 species of birds were observed during the site surveys. Observations are listed below in **Table** 3.4-1

Mammals – White tailed deer and coyote scat was observed at the time of the site survey. However, no individuals were directly observed at the time of the site survey.

Table 3.4-1. Bird species identified in OC SWRA

Species Common	Species Scientific
Ovenbird	*Seiurus aurocapilla*
Eastern towhee	*Pipilo erythrophthalmus*
Blue jay	*Cyanocitta cristata*
Field sparrow	*Spizella pusilla*
Canada goose	*Branta canadensis*
Northern cardinal	*Cardinalis cardinalis*
Turkey vulture	*Cathartes aura*
Black capped chickadee	*Poecile atricapillus*
Tufted titmouse	*Baeolophus bicolor*
Common yellowthroat	*Geothlypis trichas*
Common crow	*Corvus brachyrhynchos*
Gray catbird	*Dumetella carolinensis*
Black-throated blue warbler	*Setophaga caerulescens*
American robin	*Turdus migratorius*
Prairie warbler	*Setophaga discolor*
Eastern phoebe	*Sayornis phoebe*
American goldfinch	*Spinus tristis*
Fish crow	*Corvus ossifragus*
Mallard	*Anas platyrhynchos*
Northern mockingbird	*Mimus polyglottos*
House finch	*Haemorhous mexicanus*
Song sparrow	*Melospiza melodia*
Purple martin	*Progne subis*
Red winged blackbird	*Agelaius phoeniceus*
Great black-backed gull	*Larus marinus*
Laughing gull	*Leucophaeus atricilla*
Eastern starling	*Sturnus vulgaris*
Willet	*Tringa semipalmata*
Mourning dove	*Zenaida macroura*
Grackle	*Quiscalus quiscula*
Snowy egret	*Egretta thula*
Green heron	*Butorides virescens*
Caspian Tern	*Hydroprogne caspia*
Killdeer	*Charadrius vociferus*
House sparrow	*Passer domesticus*
Mute swan	*Cygnus olor*
Semipalmated plover	*Charadrius semipalmatus*
Common tern	*Sterna hirundo*
Herring gull	*Larus argentatus*
Rock pigeon	*Columba livia*
Barn swallow	*Hirundo rustica*
Glossy Ibis	*Plegadis falcinellus*

3.5 Species-Specific Assessment

A database search with the NJDEP Natural Heritage Program and the USFWS IPaC Mapper indicated four state-listed avian species, one state listed mammal, four state-listed reptile species, one state-listed amphibian species, and seven vascular plant species as potentially occurring on or within 1.5 miles of the OC SWRA (**Table 3.5-1**). Special concern species are not included in the table. The publication "Endangered and Threatened Wildlife of New Jersey" (Beans and Niles; 2003) and species dossiers on NJDEP's website were used as a reference for the field work and assessment. Species that were directly observed in the OC SWRA or require habitat specific surveys are discussed in further detail below.

Table 3.5-1. NJDEP Natural Heritage Program and USFWS IPaC Mapper search results for Federal and State endangered and threatened species with potential to occur within the OC SWRA

Species Common	Species Scientific	State Status	Federal Status
Mammals			
Northern Long-eared Bat	*Myotis septentrionalis*	E	T
Birds			
Bald eagle	*Haliaeetus leucocephalus*	E	-
Barred owl	*Strix varia*	T	-
Eastern black rail	*Laterallus jamaicensis*	E	T
Piping plover	*Charadrius melodus*	E	T
Osprey	*Pandion haliaetus*	T	-
Black-crowned night heron	*Nycticorax nycticorax*	T	-
Black Skimmer	*Rynchops niger*	E	-
Grasshopper sparrow	*Ammodramus savannarum*	T	-
Red knot	*Calidris canutus rufa*	E	T
Reptiles			
Northern pine snake	*Pituophis melanoleucus melanoleucus*	T	-
Amphibians			
Pine barrens treefrog	*Hyla andersonii*	T	-
Vascular Plants			
New Jersey Rush	*Juncus caesariensis*	E	-
Bog Asphodel	*Narthecium americanum*	E	-
Knieskern's Beaked-rush	*Rhynchospora knieskernii*	E	-
American Chaffseed	*Schwalbea americana*	E	E
Swamp Pink	*Helonia bullata*	E	T

Status: T - Threatened, E - Endangered

Bald Eagle is listed as an endangered species in New Jersey. No bald eagles were observed during the site investigation. The bald eagle inhabits areas of forest associated with large perch trees near a body of water (Beans and Niles 2003). Foraging opportunities occur in the WRA near Barnegat Bay and Oyster Creek. Based on discussions with NJDEP, a bald eagle nest is located near the marina landfall. Ocean Wind 1 is coordinating with NJDEP to determine the location of the nest in relation to the workspace.

Swamp Pink is listed as a federally threatened species and as an endangered species in New Jersey. The wetland delineation was conducted by field personnel with experience in identifying rare plants such as swamp pink. No specimens of swamp pink nor suitable habitat was observed on the site. While several of the sympatric species (red maple, sweet pepperbush, sphagnum moss) are present, suitable habitat is very limited and the wetland hummocks/microtopographic relief cited in the USFWS dossier is limited on the site.

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Ocean Wind
An Ørsted & PSEG project

Attachment A. USDA NRCS Web Soil Survey Custom Soil Resource Report

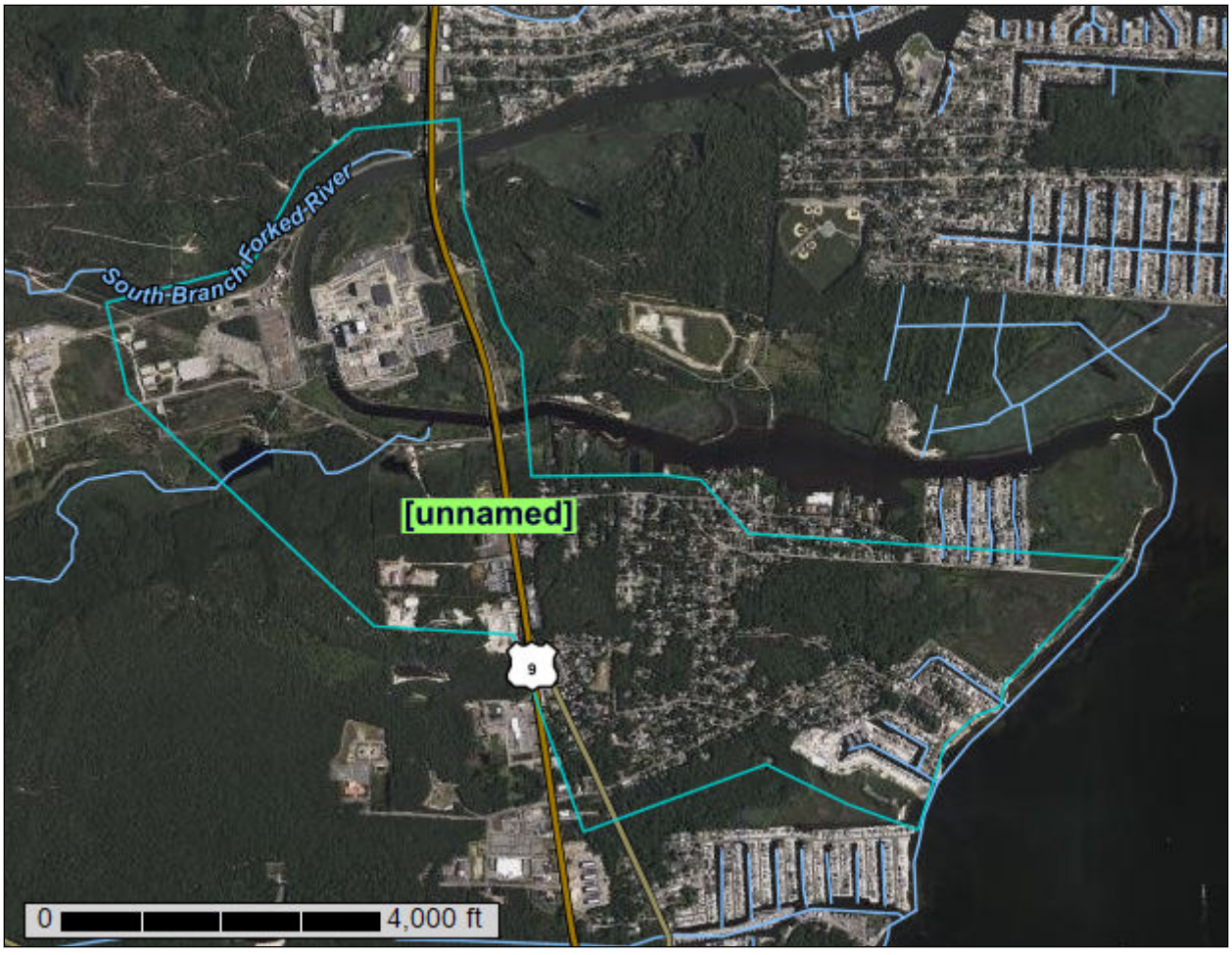
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ocean County, New Jersey



May 17, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

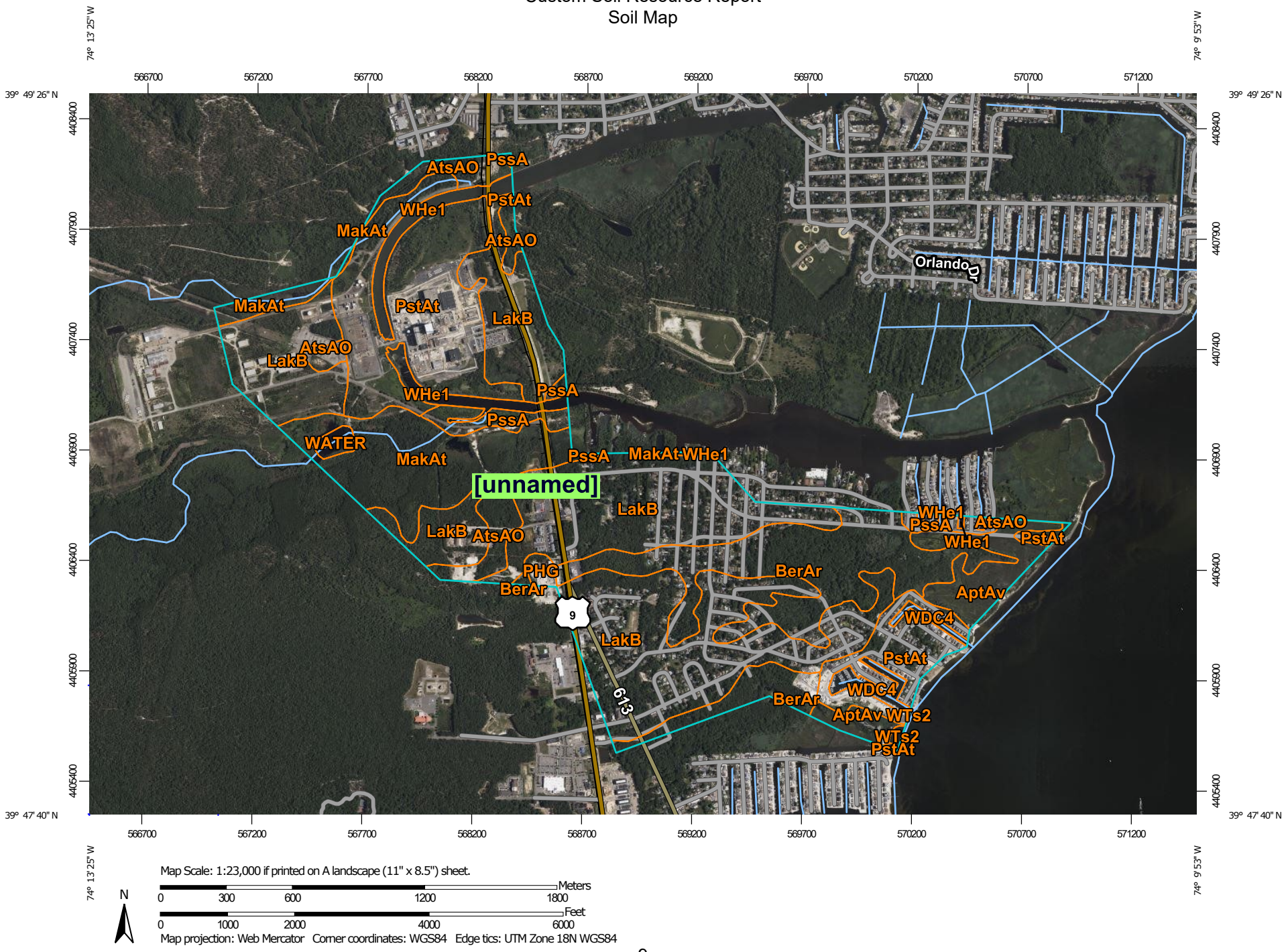
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


74° 13' 25" W
74° 9' 53" W
39° 49' 26" N
39° 47' 40" N
566700
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567700
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569200
569700
570200
570700
571200
4408400
4407900
4407400
4406900
4406400
4405900
4405400
AtsAO
PssA
PstAt
WHe1
MakAt
AtsAO
Orlando Dr
MakAt
PstAt
LakB
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WDC4
9
LakB
PstAt
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613
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WTs2
WTs2
PstAt
Map Scale: 1:23,000 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
300
600
1200
1800
Feet
0
1000
2000
4000
6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ocean County, New Jersey
Survey Area Data: Version 19, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 13, 2021—Sep 14, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AptAv	Appoquinimink-Transquaking-Mispillion complex, 0 to 1 percent slopes, very frequently flooded	43.8	4.4%
AtsAO	Atsion sand, 0 to 2 percent slopes, Northern Tidewater Area	40.1	4.1%
BerAr	Berryland sand, 0 to 2 percent slopes, rarely flooded	140.9	14.3%
LakB	Lakehurst sand, 0 to 5 percent slopes	406.5	41.1%
MakAt	Manahawkin muck, 0 to 2 percent slopes, frequently flooded	103.5	10.5%
PHG	Pits, sand and gravel	4.3	0.4%
PssA	Psamments, 0 to 2 percent slopes	22.4	2.3%
PstAt	Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded	180.8	18.3%
WATER	Water	4.7	0.5%
WDC4	Dredge Channel, 1 to 4 meter water depth	11.1	1.1%
WHe1	Herring Creek mucky silt loam, 0 to 1 meter water depth	29.4	3.0%
WTs2	Truitt-Southpoint complex, 1 to 2 meter water depth	1.2	0.1%
Totals for Area of Interest		**988.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made

up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Ocean County, New Jersey

AptAv—Appoquinimink-Transquaking-Mispillion complex, 0 to 1 percent slopes, very frequently flooded

Map Unit Setting

National map unit symbol: vk14
Elevation: 0 to 120 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Appoquinimink, very frequently flooded, and similar soils: 40 percent
Transquaking, very frequently flooded, and similar soils: 30 percent
Mispillion, very frequently flooded, and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Appoquinimink, Very Frequently Flooded

Setting

Landform: Tidal marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy fluviomarine deposits over herbaceous organic material

Typical profile

Ag - 0 to 12 inches: mucky silt loam
Cg - 12 to 30 inches: silt loam
Oe - 30 to 80 inches: mucky peat

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: Frequent
Maximum salinity: Strongly saline (16.0 to 32.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 17.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Transquaking, Very Frequently Flooded

Setting

Landform: Tidal marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material over loamy

Typical profile

Oe - 0 to 14 inches: mucky peat
Oa - 14 to 60 inches: muck
Cg - 60 to 90 inches: silty clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: Frequent
Maximum salinity: Moderately saline to strongly saline (8.0 to 32.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Mispillion, Very Frequently Flooded

Setting

Landform: Tidal marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Herbaceous organic material over loamy marine deposits and/or loamy fluviomarine deposits

Typical profile

Oe - 0 to 10 inches: mucky peat
Oa - 10 to 26 inches: muck
Cg - 26 to 90 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: Frequent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 15.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Hammonton

Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

AtsAO—Atsion sand, 0 to 2 percent slopes, Northern Tidewater Area

Map Unit Setting

National map unit symbol: 2thvz
Elevation: 0 to 230 feet
Mean annual precipitation: 41 to 50 inches
Mean annual air temperature: 46 to 66 degrees F
Frost-free period: 190 to 260 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Atsion and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Atsion

Setting

Landform: Flats, drainageways, depressions, deflation flats
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy eolian deposits and/or fluviomarine deposits

Typical profile

Oi - 0 to 2 inches: peat
A - 2 to 4 inches: sand
E - 4 to 26 inches: sand
Bhs - 26 to 34 inches: sand
Cg - 34 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.71 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Berryland, occasionally flooded

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways, deflation flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Lakehurst

Percent of map unit: 5 percent
Landform: Flats, low hills
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf, rise
Down-slope shape: Linear
Across-slope shape: Linear, convex
Hydric soil rating: No

BerAr—Berryland sand, 0 to 2 percent slopes, rarely flooded

Map Unit Setting

National map unit symbol: rdtc
Elevation: 0 to 140 feet

Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Berryland, rarely flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berryland, Rarely Flooded

Setting

Landform: Flats, depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy fluviomarine deposits

Typical profile

Ag - 0 to 11 inches: sand
Bh - 11 to 19 inches: sand
Bg - 19 to 32 inches: sand
B'h - 32 to 40 inches: sand
Cg1 - 40 to 44 inches: sand
Cg2 - 44 to 80 inches: stratified sand to sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: Rare
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Mullica, rarely flooded

Percent of map unit: 5 percent
Landform: Flood plains, depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Atsion

Percent of map unit: 5 percent
Landform: Flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Manahawkin, frequently flooded

Percent of map unit: 5 percent
Landform: Swamps, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

LakB—Lakehurst sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: rdtz
Elevation: 20 to 150 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Farmland of local importance

Map Unit Composition

Lakehurst and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lakehurst

Setting

Landform: Flats, dunes
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Sandy fluviomarine deposits

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: sand
E - 4 to 18 inches: sand
Bh - 18 to 32 inches: sand
BC - 32 to 45 inches: sand
C - 45 to 54 inches: sand
Cg - 54 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 19.98 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Atsion, rarely flooded

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Berryland, rarely flooded

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Quakerbridge

Percent of map unit: 5 percent
Landform: Knolls, flats
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex, linear
Across-slope shape: Linear
Hydric soil rating: No

MakAt—Manahawkin muck, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: rdv3
Elevation: 0 to 140 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 161 to 231 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Manahawkin, frequently flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manahawkin, Frequently Flooded

Setting

Landform: Swamps, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Organic, woody material over sandy alluvium

Typical profile

Oa1 - 0 to 13 inches: muck
Oa2 - 13 to 26 inches: muck
Oa3 - 26 to 47 inches: muck
Cg - 47 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 17.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Mullica, rarely flooded

Percent of map unit: 5 percent
Landform: Flood plains, depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Atsion

Percent of map unit: 5 percent
Landform: Flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Berryland, occasionally flooded
Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

PHG—Pits, sand and gravel

Map Unit Setting
National map unit symbol: rdv9
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition
Pits, sand and gravel: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Sand And Gravel

Setting
Parent material: Sandy material disturbed by human activity

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

PssA—Psamments, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2xhpd
Elevation: 0 to 230 feet
Mean annual precipitation: 41 to 50 inches
Mean annual air temperature: 46 to 58 degrees F
Frost-free period: 190 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Psamments, nearly level, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Psamments, Nearly Level

Setting

Landform: Flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy human-transported material

Typical profile

^A - 0 to 12 inches: coarse sand
^C1 - 12 to 36 inches: gravelly coarse sand
^C2 - 36 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 48 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Atsion

Percent of map unit: 5 percent
Landform: Depressions on flats, drainageways on flats, deflation flats on flats
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Berryland, rarely flooded

Percent of map unit: 5 percent
Landform: Depressions on flats, drainageways on flats, deflation flats on flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Hydric soil rating: Yes

Mullica

Percent of map unit: 5 percent
Landform: Drainageways on flats, depressions on flats, swales on flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

PstAt—Psammaquents, sulfidic substratum, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2xhp8
Elevation: 0 to 30 feet
Mean annual precipitation: 41 to 50 inches
Mean annual air temperature: 46 to 58 degrees F
Frost-free period: 190 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Psammaquents, sulfidic substratum, frequently flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Psammaquents, Sulfidic Substratum, Frequently Flooded

Setting

Landform: Flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy lateral spread deposits over organic material

Typical profile

^A - 0 to 12 inches: coarse sand
^C - 12 to 36 inches: gravelly sand
2Oese1 - 36 to 43 inches: mucky peat
2Oese2 - 43 to 80 inches: mucky peat

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.60 to 20.00 in/hr)
Depth to water table: About 0 inches

Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Very slightly saline to strongly saline (2.0 to 16.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Appoquinimink, very frequently flooded

Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Transquaking, very frequently flooded

Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pawcatuck, very frequently flooded

Percent of map unit: 5 percent
Landform: Tidal marshes on barrier islands
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

WATER—Water

Map Unit Setting

National map unit symbol: 2wx0v
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

WDC4—Dredge Channel, 1 to 4 meter water depth

Map Unit Setting

National map unit symbol: 2thxw
Elevation: -20 to -10 feet
Mean annual precipitation: 41 to 49 inches
Mean annual air temperature: 53 to 60 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Water, dredge channel: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water, Dredge Channel

Properties and qualities

Slope: 0 to 2 percent
Drainage class: Subaqueous
Depth to water table: About 0 inches
Frequency of flooding: Very frequent

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Yes

WHe1—Herring Creek mucky silt loam, 0 to 1 meter water depth

Map Unit Setting

National map unit symbol: 2thtw
Elevation: 0 feet
Mean annual precipitation: 41 to 49 inches
Mean annual air temperature: 53 to 60 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Herring creek, 0 to 1 meter water depth, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Herring Creek, 0 To 1 Meter Water Depth

Setting

Landform: Estuarine tidal streams

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Mainland cove fine-silty estuarine deposits over woody organic material

Typical profile

Aseg - 0 to 3 inches: mucky silt loam
Cseg - 3 to 24 inches: silt loam
Oeseb1 - 24 to 51 inches: mucky peat
Oeseb2 - 51 to 69 inches: mucky peat

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Subaqueous
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Strongly saline (16.0 to 35.0 mmhos/cm)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Metedeconk, 0 to 1 meter water depth

Percent of map unit: 10 percent
Landform: Estuarine tidal streams
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

Truitt, 0 to 1 meter water depth

Percent of map unit: 5 percent
Landform: Mainland coves
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

WTs2—Truitt-Southpoint complex, 1 to 2 meter water depth

Map Unit Setting

National map unit symbol: 2thvl
Elevation: -10 to 0 feet
Mean annual precipitation: 41 to 49 inches
Mean annual air temperature: 53 to 60 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Truitt, 1 to 2 meter water depth, and similar soils: 40 percent
Southpoint, 1 to 2 meter water depth, and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truitt, 1 To 2 Meter Water Depth

Setting

Landform: Mainland coves
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Mainland cove fine-silty estuarine deposits

Typical profile

Aseg - 0 to 1 inches: silty clay loam
Cseg - 1 to 77 inches: silty clay loam
2Oaseb - 77 to 88 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Subaqueous
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Strongly saline (16.0 to 35.0 mmhos/cm)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Yes

Description of Southpoint, 1 To 2 Meter Water Depth

Setting

Landform: Mainland coves
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Mainland cove fine-silty estuarine deposits over herbaceous organic material

Typical profile

Aseg - 0 to 1 inches: silty clay loam
Cseg - 1 to 36 inches: silty clay loam
Oeseb - 36 to 48 inches: mucky peat
Oaseb - 48 to 69 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Subaqueous
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Strongly saline (16.0 to 35.0 mmhos/cm)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Tumagan, 1 to 2 meter water depth

Percent of map unit: 15 percent
Landform: Mainland coves, submerged wave-cut platforms
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Tingles, 1 to 2 meter water depth

Percent of map unit: 5 percent
Landform: Lagoon channels, lagoon bottoms
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Pasture point, 1 to 2 meter water depth

Percent of map unit: 5 percent

Landform: Submerged wave-cut platforms
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

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Attachment B. Site Photographs

Photo 1: Upland soil profile outside of Wetland A

Photo 2: Upland vegetation outside of Wetland A

Photo 3: Wetland soil profile in Wetland A

Photo 4: Wetland A vegetation facing southeast

Photo 5: Wetland A vegetation facing southwest

Photo 6: Upland soil profile outside of Wetland B

Photo 7: Upland vegetation outside of Wetland B

Photo 8: Wetland soil profile in Wetland B

Photo 9: Wetland B vegetation

Photo 10: Upland soil profile outside of Wetland C

Photo 11: Upland vegetation outside of Wetland C

Photo 12: Wetland soil profile in Wetland C

Photo 13: Wetland C vegetation

Photo 14: Upland soil profile outside of Wetland D

Photo 15: Upland vegetation outside of Wetland D

Photo 16: Wetland soil profile in Wetland D

Photo 17: Wetland D vegetation

Photo 18: Eastern fence lizard in Wetland B

Photo 19: Rough green snake outside Wetland C

Photo 20: Watercourse A associated with Wetland B

Photo 21: Oyster Creek Tributary associated with Wetland C

Photo 22: Upland soil profile outside of Wetland E

Photo 23: Upland vegetation outside of Wetland E

Photo 24: Wetland soil profile in Wetland E

Photo 25: Vegetation in Wetland E

Photo 26: Box turtle in Wetland E

Photo 27: Upland soil profile outside Wetland F

Photo 28: Upland vegetation outside Wetland F

Photo 29: Upland vegetation outside Wetland F on Shore Road facing east

Photo 30: Wetland soil profile in Wetland F

Photo 31: Wetland vegetation in Wetland F

Attachment C. Wetland Delineation Datasheets

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region** See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp: 11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Orsted City/County: Ocean Sampling Date: 5/5/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLA-OP-2-UP

Investigator(s): DB. DV, SK Section, Township, Range: Ocean Twp, Ocean County

Landform (hillside, terrace, etc.): Flats Local relief (concave, convex, none): _____ Slope (%): 0-2

Subregion (LRR or MLRA): LRR T Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Pstat, Psammquents, Sulfide substratum NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, 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**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 16

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WLA-OP-2-UP

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 5)			
1. *Ammophila breviligulata*	70	Yes	UPL
2. *Puccinellia maritima*	15	No	OBL
3. *Plantago arenaria*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	87 =Total Cover		
50% of total cover: 44	20% of total cover: 18		

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of 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	15	x 1 =	15
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	70	x 5 =	350
Column Totals:	87 (A)		373 (B)
Prevalence Index = B/A =			4.29

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLA-OP-2-UP

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
0-8	10YR 5/6	75					Sandy	Sand with pebbles, some quartz
8-16	10YR 5/6	75					Sandy	Sand with pebbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

0-8 10YR 3/3 25%, 8-16 10YR 3/3 25%

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Orsted City/County: Ocean JWP/ Ocean Sampling Date: 5/5/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLA-OP-1-WET

Investigator(s): DB, DV, SK Section, Township, Range: Ocean Twp, Ocean County

Landform (hillside, terrace, etc.): Flats Local relief (concave, convex, none): _____ Slope (%): 0-2

Subregion (LRR or MLRA): LRR T Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: PSTAT, Psammquents, Sulfide substratum NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, 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 _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes x	No _____	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes x	No _____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WLA-OP-1-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30)			
1. *Baccharis halmifolia*	20	Yes	FAC
2. *Solidago sempervirens*	20	Yes	FACW
3.			
4.			
5.			
6.			
	40 =Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5)			
1. *Spartina patens*	90	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 =Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of 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	110	x 2 =	220
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		280 (B)
Prevalence Index = B/A =			2.15

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLA-OP-1-WET

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
0-7	10YR 3/2	60	10YR 5/3	35			Sandy	Fine sand
			10YR 3/6	5				Sand, little clay
7-16	10YR 4/3	100					Sandy	Sand, little clay, some pebbles
16-24	10YR 4/3	80	10YR 7/2	20			Sandy	Sandy clay

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region** See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp: 11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Ocean Wind City/County: Ocean Sampling Date: 5/5/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLB-OP2-UP

Investigator(s): DB, DV, SK Section, Township, Range: Ocean Twp

Landform (hillside, terrace, etc.): Top slope Local relief (concave, convex, none): _____ Slope (%): 0-5

Subregion (LRR or MLRA): lrr t Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Lakehurst Sand 0-5% slope NWI classification: PFO1B

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	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

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 (Five Strata) – Use scientific names of plants.

Sampling Point: WLB-OP2-UP

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus rigida*	40	Yes	FACU
2.			
3.			
4.			
5.			
6.			
	40	=Total Cover	
50% of total cover: 20		20% of total cover:	8
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Shrub Stratum (Plot size: 5)			
1. *Morella pensylvanica*	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover:	6
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Woody Vine Stratum (Plot size: 30)			
1. *Parthenocissus quinquefolia*	10	Yes	FACU
2.			
3.			
4.			
5.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover:	2

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (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	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	80 (A)		290 (B)
Prevalence Index = B/A =			3.63

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLB-OP2-UP

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	7.5YR 3/3	100					Peat	Organic material
3-22	7.5YR 4/6	100					Sandy	Fine sand with pebbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Ocean Wind City/County: Ocean Township Sampling Date: 5/5/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLB-OP1-WET

Investigator(s): DB, DV, SK Section, Township, Range: Ocean Twp

Landform (hillside, terrace, etc.): Depressional Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR or MLRA): LRR T Lat: Long: Datum:

Soil Map Unit Name: PstAt; Psammquents, Sulfide substratum NWI classification: PFO1B

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**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15) **(LRR U)**
- 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)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- Sphagnum Moss (D8) **(LRR T, U)**

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 (Five Strata) – Use scientific names of plants.

Sampling Point: WLB-OP1-WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	70	Yes	FAC
2. *Pinus rigida*	20	Yes	FACU
3.			
4.			
5.			
6.			
	90	=Total Cover	
50% of total cover: 45		20% of total cover: 18	

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot size: 5)			
1. *UID shrub*	40	Yes	
2. *Smilax bona-nox*	10	Yes	FAC
3.			
4.			
5.			
6.			
	50	=Total Cover	
50% of total cover: 25		20% of total cover: 10	

Herb Stratum (Plot size: 5)			
1. *Carex stricta*	30	Yes	OBL
2. *Phragmites australis*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover: 12	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	30	x 2 =	60
FAC species	80	x 3 =	240
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	160 (A)		410 (B)
Prevalence Index = B/A =			2.56

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLB-OP1-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Loamy/Clayey	Silty loam, some organic
4-8	10YR 3/1	100					Loamy/Clayey	Silt, some sand, some clay
8-14	10YR 4/1	100					Sandy	Sand
14-24	10YR 6/8	90	10YR 2/1	10	C	M	Sandy	Prominent redox concentrations

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region** See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp: 11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Orsted City/County: Ocean Sampling Date: 5/6/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLC-OP2-UP

Investigator(s): DV, SS, SK Section, Township, Range: Ocean Twp

Landform (hillside, terrace, etc.): Top of slope Local relief (concave, convex, none): _____ Slope (%): 0-2

Subregion (LRR or MLRA): LRR T Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Manahawkin Muck 0-2% slopes NWI classification: PFO4Eg/ PFO4/1C

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**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 18

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WLC-OP2-UP

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Chamaecyparis thyoides*	50	Yes	OBL
2. *Acer rubrum*	20	Yes	FAC
3. *Pinus rigida*	10	No	FACU
4.			
5.			
6.			
	80	=Total Cover	
50% of total cover: 40		20% of total cover: 16	

Sapling Stratum (Plot size: 5)			
1. *Clethra alnifolia*	60	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover: 12	

Shrub Stratum (Plot size: 5)			
1. *Smilax bona-nox*	5	Yes	FAC
2. *Parthenocissus quinquefolia*	5	Yes	FACU
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover: 2	

Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	60	x 2 =	120
FAC species	25	x 3 =	75
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	150 (A)		305 (B)
Prevalence Index = B/A =			2.03

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLC-OP2-UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/3						Loamy/Clayey	Loam
4-5	10YR 5/3						Loamy/Clayey	Loam with some sand
5-20	10YR 5/3						Sandy	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: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region** See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp: 11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Orsted City/County: Ocean Sampling Date: 5/6/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLC-OP1-WET

Investigator(s): DV, SS, SK Section, Township, Range: Ocean Twp

Landform (hillside, terrace, etc.): Bottom of slope Local relief (concave, convex, none): _____ Slope (%): 0-2

Subregion (LRR or MLRA): LRR T Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Manahawkin Muck, 0-2% slope, frequently flooded NWI classification: PFO4Eg/ PFO4/1C

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 _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 4

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WLC-OP1-WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus rigida*	40	Yes	FACU
2. *Acer rubrum*	30	Yes	FAC
3.			
4.			
5.			
6.			
	70	=Total Cover	
50% of total cover: 35		20% of total cover: 14	
Sapling Stratum (Plot size: 5)			
1. *Clethra alnifolia*	60	Yes	FACW
2. *Ilex glabra*	30	Yes	FACW
3.			
4.			
5.			
6.			
	90	=Total Cover	
50% of total cover: 45		20% of total cover: 18	
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of 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	90	x 2 =	180
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	160 (A)		430 (B)
Prevalence Index = B/A =			2.69

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLC-OP1-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	5YR 4/2						Mucky Loam/Clay	Peaty loam
6-20	2.5YR 5/1						Muck	Organic muck

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
X Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) (**MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
___ 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:
Organic material/ leaf litter 3"

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region** See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R	*OMB Control #: 0710-0024, Exp: 11/30/2024* *Requirement Control Symbol EXEMPT:* *(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: Orsted City/County: Ocean Sampling Date: 5/6/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLD-OP1-UP

Investigator(s): SS, DV, SK Section, Township, Range: Ocean Twp

Landform (hillside, terrace, etc.): top of slope Local relief (concave, convex, none): _____ Slope (%): 0-2

Subregion (LRR or MLRA): LRR T Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Manahawkin Muck 0-2% slopes, frequently flooded NWI classification: PFO4Cg

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**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

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 (Five Strata) – Use scientific names of plants.

Sampling Point: WLD-OP1-UP

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Chamaecyparis thyoides*	50	Yes	OBL
2. *Pinus rigida*	20	Yes	FACU
3. *Acer rubrum*	10	No	FAC
4.			
5.			
6.			
	80	=Total Cover	
50% of total cover: 40		20% of total cover: 16	
Sapling Stratum (Plot size: 5)			
1. *Chamaecyparis thyoides*	30	Yes	OBL
2. *Ilex opaca*	5	No	FAC
3. *Clethra alnifolia*	10	Yes	FACW
4.			
5.			
6.			
	45	=Total Cover	
50% of total cover: 23		20% of total cover: 9	
Shrub Stratum (Plot size: 5)			
1. *Mitchella repens*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover: 2	
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	10	x 2 =	20
FAC species	15	x 3 =	45
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	135 (A)		265 (B)

Prevalence Index = B/A = 1.96

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLD-OP1-UP

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	7.5YR 3/2	100					Loamy/Clayey	loam with organic top
3-20	2.5YR 6/6	100					Sandy	sand with 10% pebbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Orsted City/County: Ocean Sampling Date: 5/6/2022

Applicant/Owner: Orsted State: NJ Sampling Point: WLD-OP2-WET

Investigator(s): SS,DV,SK Section, Township, Range: Ocean Twp

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): 0-2

Subregion (LRR or MLRA): LRR T Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Manahawkin muck 0-2% slopes frequently flooded NWI classification: PFO4Cg

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 _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 1
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 (Five Strata) – Use scientific names of plants.

Sampling Point: WLD-OP2-WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Chamaecyparis thyoides*	75	Yes	OBL
2. *Pinus rigida*	25	Yes	FACU
3.			
4.			
5.			
6.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover: 20	

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot size: 5)			
1. *Ilex glabra*	20	Yes	FACW
2. *Clethra alnifolia*	10	Yes	FACW
3.			
4.			
5.			
6.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	

Herb Stratum (Plot size: 5)			
1. *Polygonatum biflorum*	5	Yes	FACU
2. *Carex stricta*	5	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover: 2	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	140 (A)		260 (B)
Prevalence Index = B/A =			1.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WLD-OP2-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	7.5YR 2.5/1						Mucky Peat	Organic muck peat

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- X Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

Inundated pockets with water observed

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Marina Property City/County: Waretown/Ocean Sampling Date: 6/1/22

Applicant/Owner: Orsted- Ocean Wind State: NJ Sampling Point: WET E-UP(Marina)

Investigator(s): S. Seymour, S. Kirkpatrick, D. Healy Section, Township, Range: Waretown/ Lacey Township

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR or MLRA): LRR T Lat: 39.799414 Long: -74.184949 Datum: _____

Soil Map Unit Name: Berryland sand, 0-2% slope, rarely flooded NWI classification: NONE

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**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

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 (Four Strata) – Use scientific names of plants.

Sampling Point: WET E-UP(Marina)

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus rigida*	40	Yes	FACU
2. *Quercus alba*	30	Yes	FACU
3. *Nyssa sylvatica*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
	80	=Total Cover	
50% of total cover: 40		20% of total cover:	16
Sapling/Shrub Stratum (Plot size: 15)			
1. *Vaccinium corymbosum*	20	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover:	4
Herb Stratum (Plot size: 5)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Woody Vine Stratum (Plot size: 30)			
1. *Smilax rotundifolia*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover:	2

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (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	20	x 3 =	60
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	110 (A)		380 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 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 Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)
Root zone in the upper 12" of the soil profile. No herbacous layer.

SOIL

Sampling Point: WET E-UP(Marina)

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 3/3	100					Mucky Loam/Clay	Dry organic loam, fine
4-8	10YR 4/2	100					Sandy	Loamy sand (dry), fine
8-20	10YR 6/2	100					Sandy	Dry sand, fine

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

1-2" layer of dry pine needles and leaves on soil surface

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Marina Property City/County: Waretown/Ocean Sampling Date: 6/1/22

Applicant/Owner: Orsted/ Ocean Wind State: NJ Sampling Point: WETE-WET (Marina)

Investigator(s): S. Seymour, S. Kirkpatrick, D. Healy Section, Township, Range: Waretown/ Lacey Township

Landform (hillside, terrace, etc.): Level Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): LRR T Lat: 39.799115 Long: -74.185369 Datum: _____

Soil Map Unit Name: Appoquinimink/ transquakins/ Mispillion complex NWI classification: E2EM5Pd

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**
Hydric Soil Present?	Yes X No _____	**within a Wetland?** **Yes** X **No** _____
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 15
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:
Narrow fringe (20- 30 ft wide) of common reed, then opens up into an expansive salt meadow cordgrass tidal wetland. Some surface water (tribs of Fresh Creek) and mud flats interspersed in the wetland.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WETE-WET (Marina)

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Nyssa sylvatica*	45	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	45 =Total Cover		
50% of total cover: 23	20% of total cover: 9		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Morella pensylvanica*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 =Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 5)			
1. *Calystegia sepium*	20	Yes	FAC
2. *Phragmites australis*	80	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (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	80	x 2 =	160
FAC species	85	x 3 =	255
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	165 (A)		415 (B)

Prevalence Index = B/A = 2.52

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 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 Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)
Number of dead trees (mostly black gum) on the wetland edge. Black gum within the vegetation plot show some dieback/ loss of terminal branches.

SOIL

Sampling Point: WETE-WET (Marina)

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 2/1	100					Mucky Loam/Clay	Wet organic loam, dense
5-20	10YR 6/1	100					Sandy	Gleyed fine sand, wet

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- X Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

Common reed rhizomes in upper foot of soil profile. Few dead tree roots also.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Nautilus/ Lighthouse City/County: Waretown, Ocean Sampling Date: 6/1/2022

Applicant/Owner: Orsted State: NJ Sampling Point: Lighthouse Dr.

Investigator(s): S. Seymour, S. Kirkpatrick, D. Healy Section, Township, Range: Waretown/ Lacey Township

Landform (hillside, terrace, etc.): level Local relief (concave, convex, none): level Slope (%): 0

Subregion (LRR or MLRA): LRR T Lat: 39.801530 Long: -74.180837 Datum:

Soil Map Unit Name: Psammaquents, frequently flooded NWI classification: None

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 X significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

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 ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
The parcel has been ditched; the ditch has been recently dredged and the material sidecast into the wetland. The ditch and recent dredging may have affected the wetland hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 0.5
Water Table Present?	Yes X	No ____	Depth (inches): 6
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:
There is a ditch running through the parcel with standing water 1-10" deep; no discernible flow. Water filled the soil pit to within 6" of the soil surface. There is a culvert under Lighthouse Drive that discharges to a (tidal) canal to the north.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: Lighthouse Dr.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Phragmites australis*	90	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 =Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of 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	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		180 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 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 Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: Lighthouse Dr.

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10yr 2/1	100					Muck	Organic muck with reed grass rhizomes, saturated

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Holiday Beach Club City/County: Waretown/ Ocean Sampling Date: 7/6/2022

Applicant/Owner: Orstead/ Ocean Wind State: NJ Sampling Point: WET F UP

Investigator(s): S. Seymour, D. Healy Section, Township, Range:

Landform (hillside, terrace, etc.): level Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR T Lat: 39.800263 Long: -74.179521 Datum:

Soil Map Unit Name: Psammaquents, 0-2% slope, frequently flooded NWI classification: None

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 No X

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	
Wetland Hydrology Present?	Yes	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15) **(LRR U)**
- 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)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Sphagnum Moss (D8) **(LRR T, U)**

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 (Four Strata) – Use scientific names of plants. Sampling Point: WET F UP

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 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 Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)
No vegetation. Open sand adjacent to picnic area and plyaground.

SOIL

Sampling Point: WET F UP

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
0-8	10YR 5/3	100					Sandy	Coarse dry sand
8-20	10YR 5/4	100					Sandy	Coarse dry sand with 10% rounded quartz pebbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Holiday Beach Club City/County: Waretown/ Ocean Sampling Date: 7/6/2022

Applicant/Owner: Orstead/ Ocean Wind State: NJ Sampling Point: WET F WET

Investigator(s): S. Seymour, D. Healy Section, Township, Range:

Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR T Lat: 39.800263 Long: -74.179521 Datum:

Soil Map Unit Name: Psammaquents, 0-2% slope, frequently flooded NWI classification: NONE

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 ____ No X

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**
Hydric Soil Present?	Yes X	No ____	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Wetland appears to receive large volumes of stormwater runoff from adjacent (paved) road network.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 12

Wetland Hydrology Present? **Yes** X **No** ____

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

Remarks:
No visible outlet to the bay. Shoreline bulkhead. Several stormwater flowpaths on the westerly side of the wetland from Shore Road.All surface runoff during storms ~ no drainage basins or culverts in the vicinity.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET F WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Phragmites australis*	80	Yes	FACW
2. *Solidago sempervirens*	7	No	FACW
3. *Calystegia sepium*	8	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 =Total Cover		
50% of total cover: 48	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of 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	87	x 2 =	174
FAC species	8	x 3 =	24
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		198 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 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 Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)
Very dense stand of 6-10' tall common reed with scattered seaside goldenrod and hedge bindweed.

SOIL

Sampling Point: WET F WET

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
0-12	10YR 5/4	100					Sandy	Coarse sand
12-20	10YR 5/1	100					Loamy/Clayey	fine silty clay with about 10% rounded quartz pebbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ 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:

Area may have been historically filled. Common reed rhizomes throughout soil profile.

Ocean Wind
An Ørsted & PSEG project

BL England

Ocean Wind
An Ørsted & PSEG project

Ocean Wind – B.L. England Substation

Wetland Supplemental Delineation Report

39°17'23" N 74°38'02" W
900 North Shore Road
Upper Township, Cape May County, New Jersey
Tax Block 479, Lot 76

Document Version

File Name	Preparer	Editor	Checker	Accepter	Approver
B.L. England Delineation Report_DRAFT	**DH**		**LW**		

Ocean Wind
An Ørsted & PSEG project

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1. Project Description

Ocean Wind, LLC (Ocean Wind), a joint venture between Ørsted Wind Power North America, LLC (Ørsted) and Public Service Enterprise Group Renewable Generation LLC (PSEG), proposes to construct and operate the Ocean Wind 1 Offshore Wind Farm Project (OCW01) pursuant to the Bureau of Ocean Energy Management (BOEM) requirements for the commercial lease of submerged lands for renewable energy development on the outer continental shelf (Lease Area OCS-A-0498). Ocean Wind 1 intends to develop, build, operate, and own a utility-scale offshore wind farm located approximately 15 miles off the coast of New Jersey within the OCS-A 0498 Lease area (the "Project").

As a part of Project development, Ocean Wind is looking to best utilize the available points of interconnection to the onshore grid. One point of interconnection is at the former BL England Generating Station (BLEGS). A proposed Onshore Substation will be located adjacent to the point of interconnection within a portion of the former BLEGS property, in an area that previously was used to store coal. To support the evaluation of the proposed substation site a wetland/watercourse delineation and ecological community assessment was completed within the Wetland Review Area (WRA) in 2022.

The WRA encompasses an area in Upper Township within Cape May County, NJ (Figure 1.1-1). The WRA includes the land potentially disturbed in association with the proposed substation and interconnection site at the former B.L England Generating Station site (Figure 1.1-1).

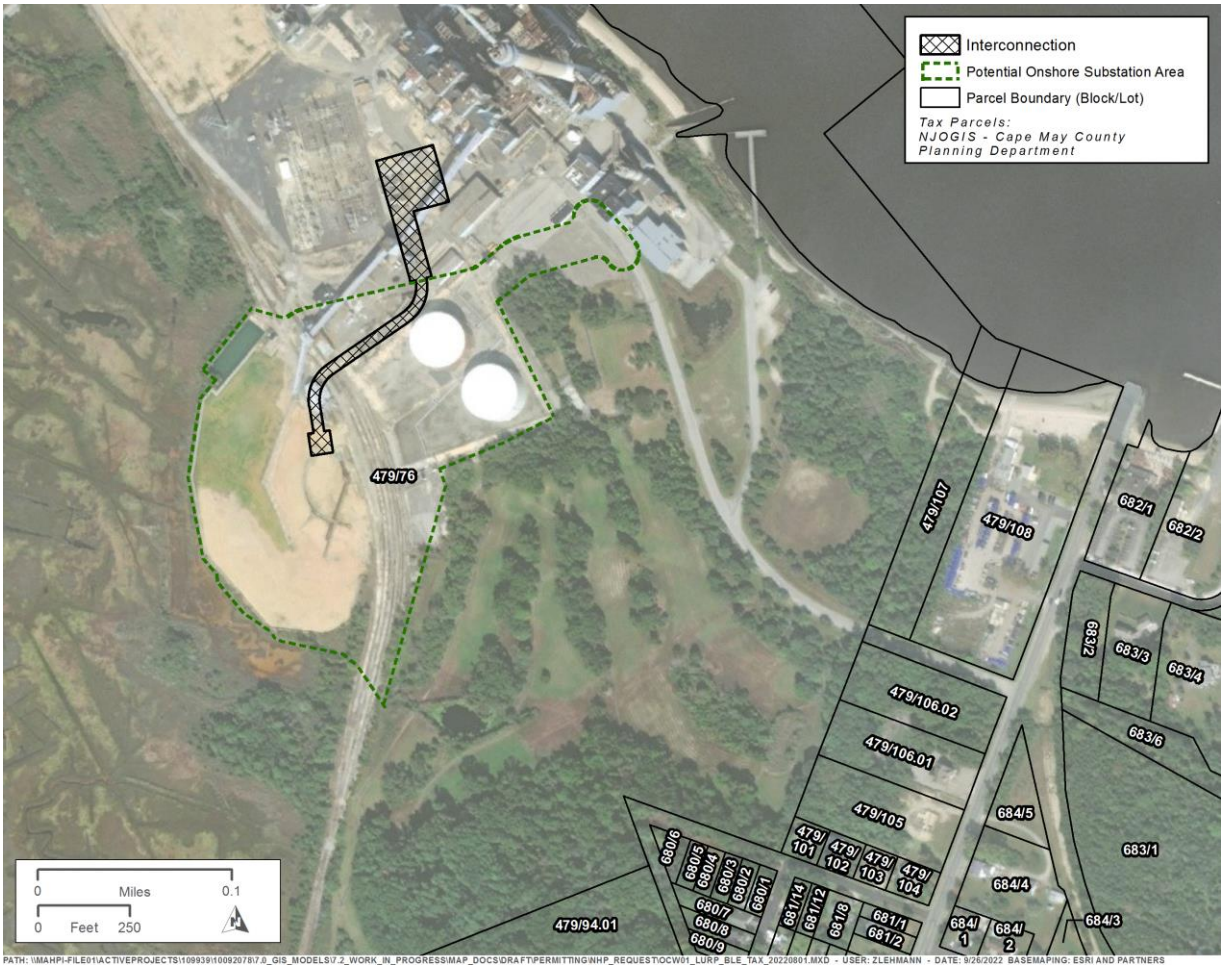

Figure 1.1-1 Wetland Review Area for BL England Substation Relocation Overview

2. Methods

HDR Engineering, Inc. (HDR) verified the boundaries of wetlands within the WRA in two phases, Desktop Review and Field Survey, as described below. The WRA (Figure 1.1-1) includes the potential onshore substation parcel area and the interconnection area. The onshore export cable area extends from Clay Avenue to the new substation location through the former golf course substation location and wetlands were previously delineated and included in the original wetland delineation report. Therefore, they are not repeated in this report.

2.1 Desktop Review

Prior to conducting the wetland delineation, relevant materials were reviewed, and are included as attachments for reference:

- NJDEP Watershed Management Area Map (Figure 3.1-1) Federal Emergency Management Agency (FEMA) 2013 Preliminary Working Data Flood Insurance Rate Maps (FIRM) (Figure 3.1-2)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map (Figure 3.1-3)
- New Jersey State Department of Environmental Protection (NJDEP) Wetlands Map (Figure 3.1-4)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation (NRCS) Web Soil Survey (WSS) Custom Soil Resource Report (Attachment A)
- Division of Land Use Regulation LOI (Attachment D)

2.2 Field Survey

On June 15th, 2022, the boundaries of the wetlands within the WRA were verified. The wetland boundaries were walked and verified based on the three-parameter approach (soils, vegetation, and hydrology) described in the 1989 Federal Interagency Manual. Upland and wetland observation points were recorded for the verified wetland. Points were collected along the previously mapped wetland boundaries by a New Jersey licensed professional land surveyor during the visit in June 2022. Photographs of the site, wetland observation soil pits, and vegetation were taken and are included in Attachment B. Wetland delineation data sheets are included in Attachment C.

3. Results

3.1 Desktop Review

The Division of Land Use Regulation (Division) issued an LOI in March 2019 for wetland delineation surveys that had been done on November 14th, 2018, and December 27th, 2018, surrounding the WRA.

The WRA is within the NJDEP Great Egg Harbor Watershed Management Area. The Great Egg Harbor Watershed Management Area includes the following watersheds: Great Egg Harbor River, Tuckahoe River, Absecon Creek, and Patong Creek all of which drain to Great Egg Harbor Bay in Atlantic County (NJDEP).

The watershed's dominant land use is forests, with the remaining uses being agricultural and development. Population centers include Berlin, Winslow, Monroe, Mays Landing and Egg Harbor City. The major tributaries are Hospitality Branch, Watering Race, Babcock Creek, Deep Run, South River, and Stephens Creek. There are many lakes and ponds in this area, but the largest is Lake Lenape, near Mays Landing. Of the approximately 12 New Jersey Pollutant Discharge Elimination System (NJPDES)permitted discharges here, about half are municipal and half are industrial/commercial. Waters in the Great Egg Harbor watershed are classified as FW-2 Non-trout, Pinelands Waters, FW-1, and SE-1 (NJDEP). There is one non-community Well Head Protection Area (Tier 1-3) within the WRA.

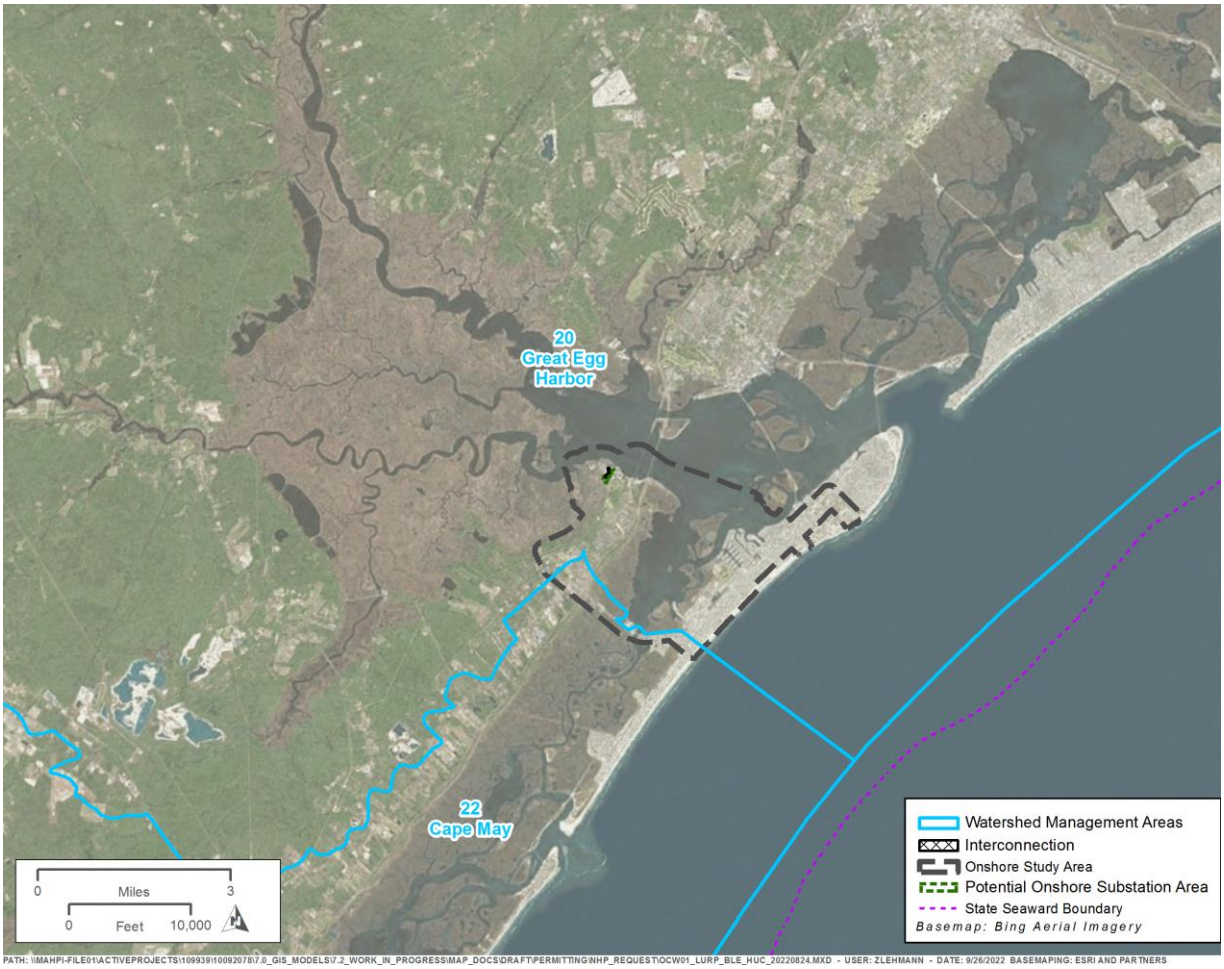

Figure 3.1-1 NJDEP Watershed Management Area Map

FEMA floodplain maps show that the majority of the WRA is outside of the AE zone that surrounds it (Figure 3.1-2). However, some AE zoned areas are on the southeast and northwest areas of the WRA. A zone AE classification means there is a 1% chance each year of severe flooding and therefore deemed high risk areas by FEMA (Federal Emergency Management Agency) and NFIP (National Flood Insurance Program). AE zones in this area are most concerned with flash flooding and hurricanes. Figure 3.1-2 also shows areas within the WRA labeled as zone X. A zone X classification area has minimal flood hazard threats and is outside of the Special Flood Hazard Area (SFHA) classification meaning higher than the elevation of the 0.2% annual chance of flooding criteria.

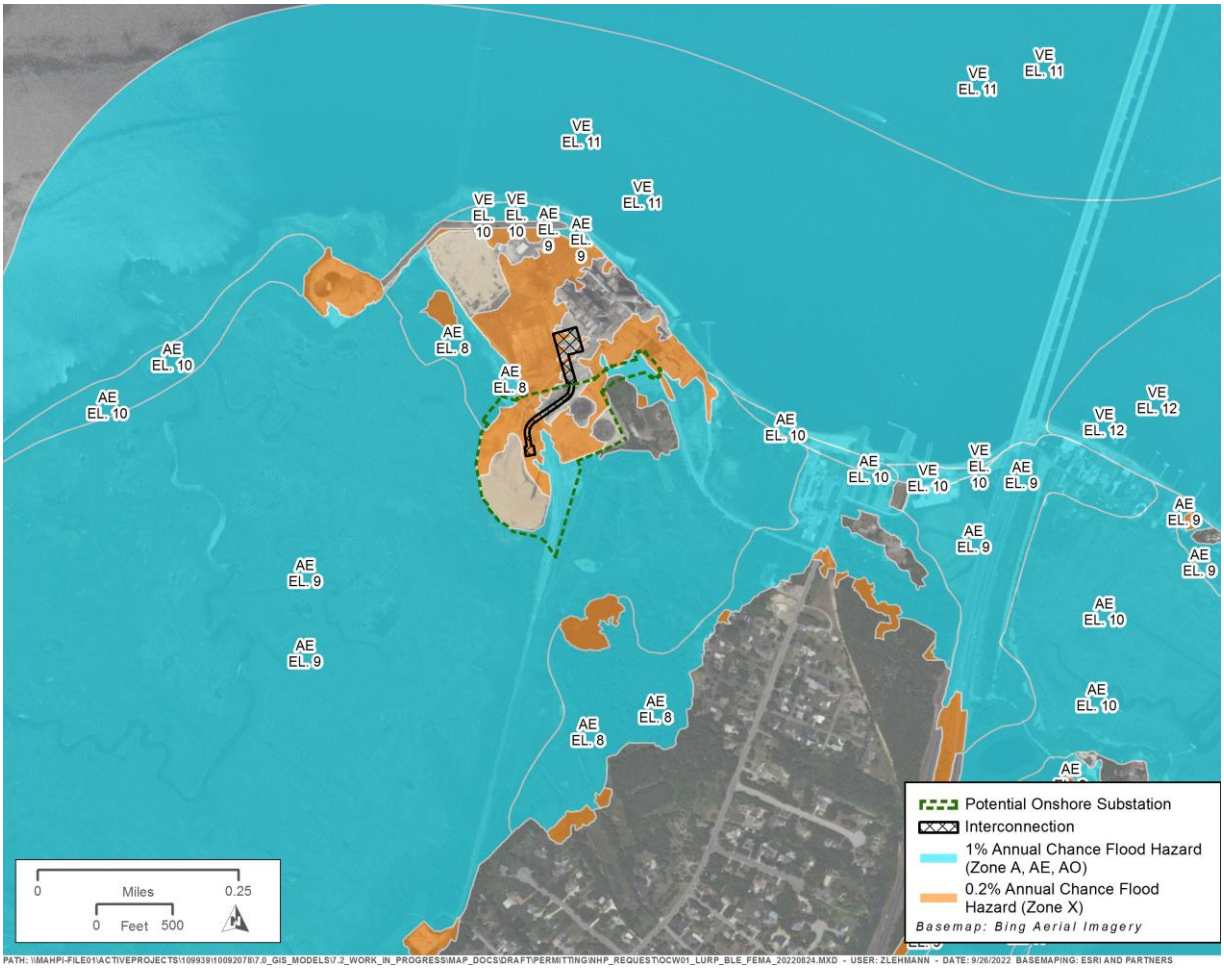

Figure 3.1-2 FEMA FIRM Flood Hazard Area Map

The proposed BL England Substation property is highly disturbed due to previous use as a coal storage area and recent remediation of the site. Based on review of the National Wetland Inventory (NWI) mapper, (Figure 3.1-3) a portion of the WRA to the west is classified as E2EM1Pd- Estuarine and Marine Wetland. There is also a small area of PSS1/4B- Freshwater Forested/Shrub Wetland to the south of the WRA beyond the bordering E2EM1Pd. There are some areas of PUBHx- Freshwater Pond, PFO1B Freshwater Forested/Shrub Wetland and PFO1E- Freshwater Forested/Shrub Wetland to the southeast on the former golf course property. However, the area immediately bordering the WRA to the north, east and southeast is unmapped in the NWI likely due to its high level of disturbance. Beyond these disturbed and unmapped areas to the north and east the property is E1UBL6- Estuarine and Marine Deepwater.

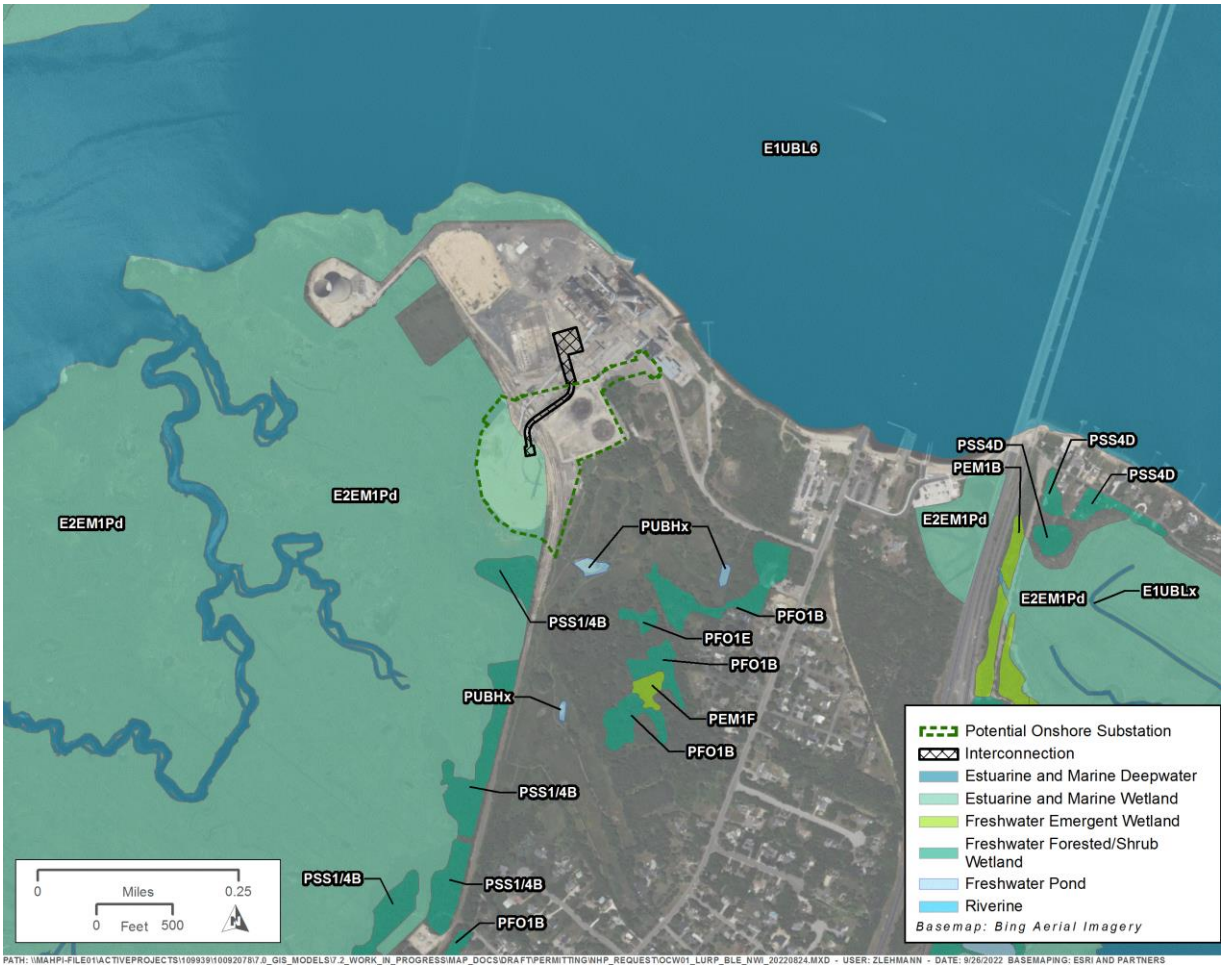

Figure 3.1-3 NWI Wetlands Map

According to the NJDEP GeoWeb Land Use/Land Cover 2015 layer the WRA is classified mostly as urban/industrial land. According to the NJDEP Wetland mapper, there are no NJDEP wetlands within the WRA. Saline Marsh (low marsh) borders the WRA to the west along the concrete retaining wall and a small area adjacent to the southeast corner is mapped as managed wetland in built-up maintained rec-area (Figure 3.1-4).

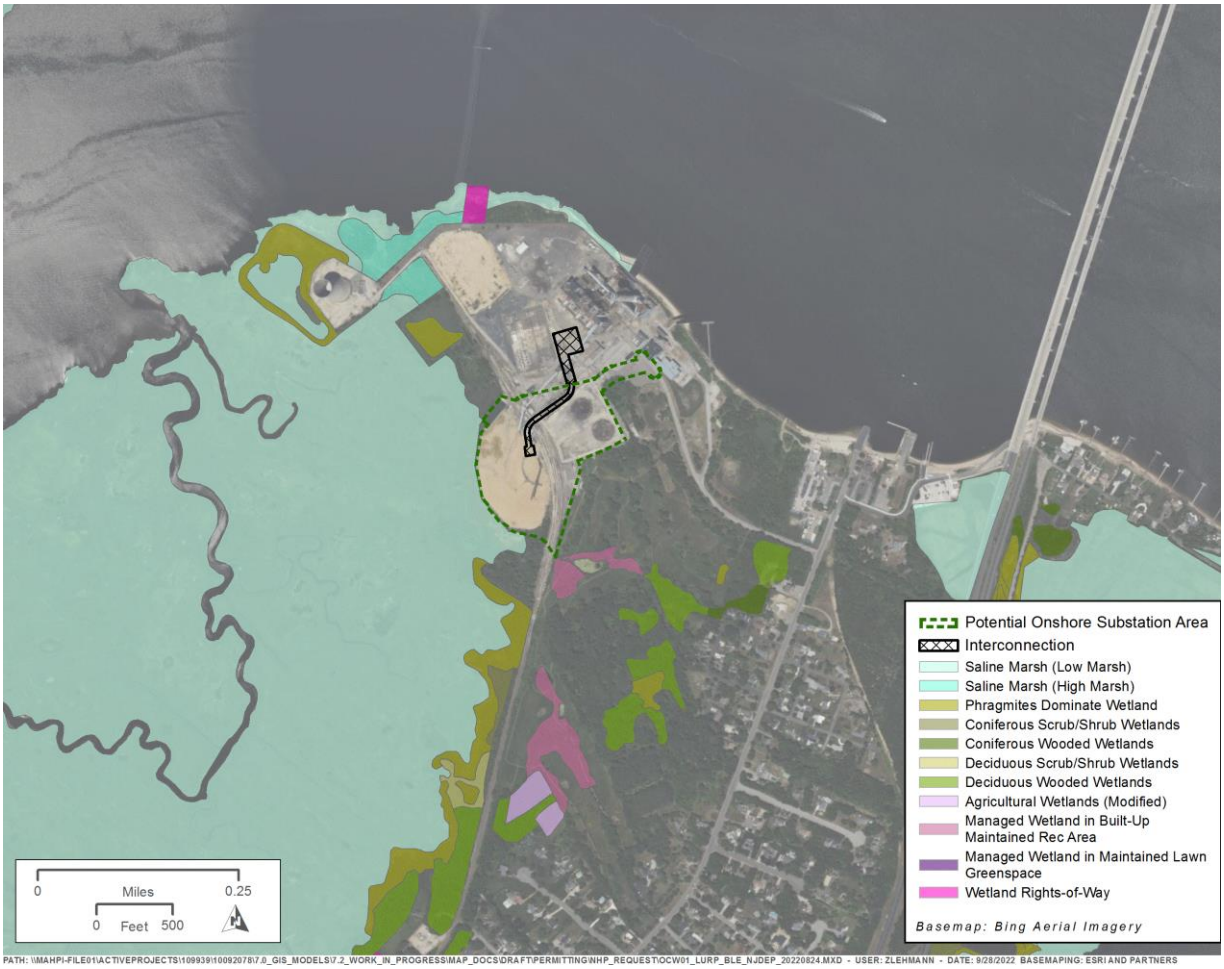

Figure 3.1-4 NJDEP Wetland Map

A USDA Web Soil Survey report was collected for the WRA (Table 3.1-1). Soils within the WRA were found to be mostly (≈98.3 %) split between UdrB- Udorthents and UR- Urban land. The remaining ≈1.7% of land in the WRA consists of Berryland and Mullica; Galloway; and Pawcatuck-Transquaking complex soils all of which are considered hydric soil indicators in Cape May County, NJ. The Berryland and Mullica; Galloway; and Pawcatuck-Transquaking complex soils are found along the WRA boundary in areas that have previously been determined to be wetlands as discussed in the LOI.

Table 3.1-1 USDA Web Soil Survey Results within the WRA

Map Unit Symbol	Map Unit Name	Est. Acres in WRA	Est Percent in WRA
BEXAS	Berryland and Mullica soils, 0 to 2 percent slopes, occasionally flooded	0.3	1.6%
GamB	Galloway loamy sand, 0 to 5 percent slopes	0.00	0.1%
PdwAv	Pawcatuck-Transquaking complex, 0 to 1 percent slopes, very frequently flooded	0.00	0.1%
UdrB	Udorthents, refuse substratum, 0 to 8 percent slopes	8.2	47.9%
UR	Urban land	8.6	50.4%
Total estimate for WRA		17.1	100.0%

3.2 Wetland Delineation Field Survey

On June 15th, 2022, a wetland survey was conducted within the WRA and one wetland was verified (WL-1). Results from this survey are provided in Table 3.2-2. The wetland verification was done by walking along the outside edge of the wetland boundary described as WL in Figure 3.2-1. The majority of the WRA was found to be disturbed industrial land with little vegetation. The western and southern boundaries of the WRA, outside of the concrete barrier wall, were found to include upland and wetland habitat.

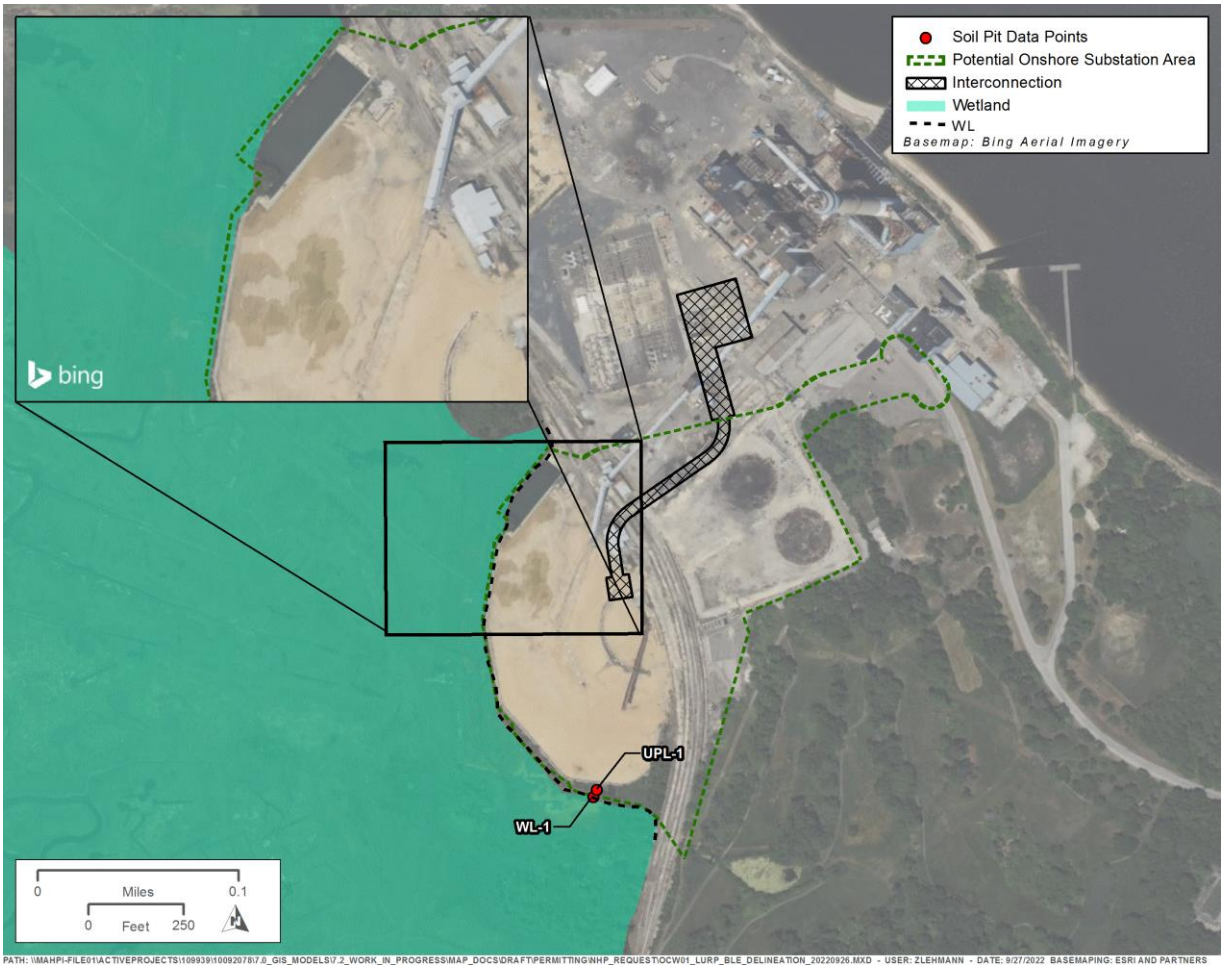

Figure 3.2-1 Field Survey Wetland Delineation Map

At the WL-1 location hydrophytic vegetation, hydric soil, and wetland hydrology were found and it was determined that the area sampled is a wetland. Normal circumstances appeared to be present at the time of the site visit. Surface water was present at a depth of 0.5 inch and both a water table and saturation were present to the surface so wetland hydrology was confirmed. Vegetation at this location included common reed (*Phragmites australis*) and saltmeadow cordgrass (*Spartina patens*). Saltmeadow cordgrass was the only dominant species classifying the dominant species as 100% OBL and therefore passing the dominance test. Saltmeadow cordgrass made up 95% of the herb stratum in the area which resulted in a prevalence index of 1.0 and a passing score on the prevalence index scale. These results confirm that hydrophytic vegetation is present in WL-1. The soil in WL-1 had histosol and hydrogen sulfide present, two hydric soil indicators that suggest hydric soil exists. The soil texture was fine throughout the sample area. The top two inches were a very light saturated silt with roots while the remaining 18 inches of the sampled pit consisted of a saturated silty organic loam. The surface layer of light-colored fine silt is presumably eroded material from upland. This eroded material does not appear to be impeding the growth or density of the saltmeadow cordgrass. This material was not actively eroding at the time of the site visit.

At the UPL-1 location hydrophytic vegetation, hydric soil, and wetland hydrology were not found and it was determined the area sampled is not a wetland. The slope is identified as old fill material due to presence of coal and coal cinders throughout the profile. Normal circumstances did not appear to be present at the time of the site visit. Vegetation at this location includes dominant species: American Sweetgum (*Liquidambar styraciflua*),

Red Cedar (*Juniperus virginiana*), Northern Bayberry (*Morella pensylvanica*), Hawkweed (*Hieracium lachenalia*), flax-leaf ankle-aster (*Ionactis linariifolia*), Virginia creeper (*Parthenocissus quinquefolia*), Poison ivy (*Toxicodendron radicans*) and non-dominant species include black cherry (*Prunus serotina*) and pitch pines (*Pinus* rigida). Trees in the vicinity are 30-35 ft in height and 6-10 inches in diameter. Only 3 of the 9 (33/3%) dominant species were classified as either OBL, FACW, or FAC so the vegetation did not pass the hydrophytic dominance test. The prevalence index was 3.63 so it is not ≤3.0 and therefore does not pass the prevalence index criteria. These results confirm that hydrophytic vegetation is not present in the upland location. The soil in this area also did not have hydric indicators. The top 8 inches are coarse in texture with mixed fill consisting of coal chucks and cinders, sand, and silt with 20% rounded quartz pebbles. The remaining 12 inches of the pit sampled consisted of mixed fill with chucks of coal.

Table 3.2-2 Summary of Wetland Delineation Field Survey Results

Wetland ID	Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicator	NWI Classification	Cowardin Classification	Size (Acres)
Wetland WL-1	Surface Water (A1), Saturation (A3), Drift Deposits (B3), Hydrogen Sulfide Odor (C1), Saturation Visible on Aerial Imagery (C9)	Saltmeadow cordgrass *(Spartina patens)*	Histosol (A1), Hydrogen Sulfide (A4)	E2EM1Pd	Estuarine	0.11

3.3 Wildlife

The majority of the WRA was found to be disturbed industrial land with little vegetation. The western and southern boundaries of the WRA, outside of the concrete barrier wall, were found to include upland and wetland habitat. While no species-specific wildlife studies were conducted, all wildlife observations made in association with the wetland delineation and ecological community mapping field studies were recorded. Birds were identified by song and/or direct observation; mammals were identified by direct observation, scat, and/or tracks, amphibians were identified by direct observation, and reptiles were identified by direct observation or artifacts found such as shells and skin sheds.

Fish – No fish were observed during the site visit

Mammals – No mammals were observed during the sit visit.

Amphibians – Several hundred Fowler's toad (*Anaxyrus fowleri*) tadpoles were observed in the shallow puddles between and railroad tracks. Several dozen Fowler's toad toadlets were observed along the concrete barrier upland of the wetland edge during the site visit.

Reptiles – 1 female diamondback terrapin (*Malaclemys terrapin*) was observed laying eggs along the south side of theconcrete barrier around where the UPL-1 soil data was collected during the site visit. One Eastern box turtle (*Terrapene carolina*) shell and one recently shed 5 ft (approximately) Eastern rat snake (*Pantherophis alleghaniensis)* skin was found during the site visit along the eastern edge of the WRA.

Birds – 19 different bird species were observed during the site visit. The specific species can be found in Table 3.3-1

Table 3.3-1 Bird Species Observed in the WRA

Species Common	Species Scientific
American robin	*Turdus migratorius*
Barn swallow	*Hirundo rustica*
Canada goose	*Branta canadensis*
Carolina Wren	*Thryothorus ludovicianus*
European starling	*Sturnus vulgaris*
Field sparrow	*Spizella pusilla*
Fish crow	*Corvus ossifragus*
Glossy Ibis	*Plegadis falcinellus*
Great Egret	*Ardea alba*
Indigo Bunting	*Passerina cyanea*
Laughing gull	*Leucophaeus atricilla*
Mourning dove	*Zenaida macroura*
Northern cardinal	*Cardinalis cardinalis*
Northern mockingbird	*Mimus polyglottos*
Osprey	*Pandion haliaetus*
Raven	*Corvus corax*
Red winged blackbird	*Agelaius phoeniceus*
Rock pigeon	*Columba livia*
Snowy egret	*Egretta thula*

4. Literature Cited

Conserve Wildlife Foundation of New Jersey. (2022). *New Jersey endangered and threatened species field guide: Eastern box turtle*. Accessed July 1, 2022, at www.conservewildlife nj.org/species/fieldguide/.

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United States Army Corps of Engineers (USACE). (2005). *Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification.* Don T. Riley, Major General, US Army, Director of Civil Works.

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United States Department of Agriculture (USDA): Natural Resources Conservation Service. (2015). *Web Soil Survey*. Retrieved from United States Department of Agriculture, Natural Resources Conservation Service: http://websoilsurvey.nrcs.usda.gov/ Accessed 20 July 2022.

Wildlife Field Guide for New Jersey's Endangered and Threatened Species - Conserve Wildlife Foundation of New Jersey (conservewildlifenj.org)

Attachment A. USDA NRCS Web Soil Survey Custom Soil Resource Report

Soil Map—Cape May County, New Jersey
(BLE Substation Relocation)

Map Scale: 1:2,920 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cape May County, New Jersey
Survey Area Data: Version 17, Aug 30, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BEXAS	Berryland and Mullica soils, 0 to 2 percent slopes, occasionally flooded	8.7	22.7%
GamB	Galloway loamy sand, 0 to 5 percent slopes	1.7	4.5%
PdwAv	Pawcatuck-Transquaking complex, 0 to 1 percent slopes, very frequently flooded	6.4	16.6%
UdrB	Udorthents, refuse substratum, 0 to 8 percent slopes	8.7	22.6%
UR	Urban land	12.0	31.2%
USPSAS	Urban land-Psamments, sulfidic substratum complex, 0 to 2 percent slopes, occasionally flooded	0.9	2.4%
Totals for Area of Interest		**38.5**	**100.0%**

Attachment B. Site Photographs

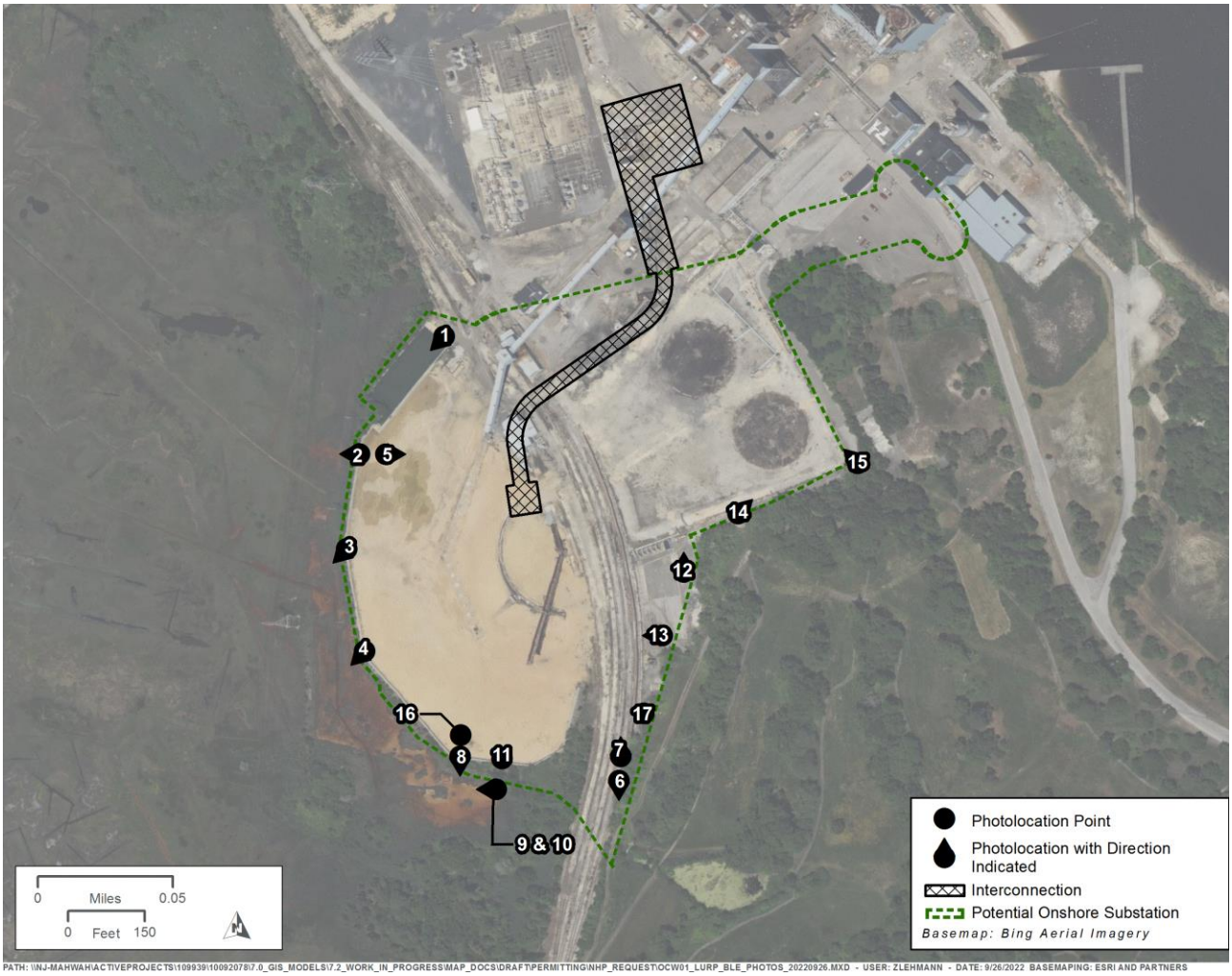


Photo Location Map

Photo 1 – Concrete lagoon on northern end of the review area. Water clear; about four feet deep.

Photo 2 – Extensive saltmarsh and saltmeadow cordgrass wetland south and west of the former coal storage area. Herons and egrets observed feeding in the marsh.

Photo 3 – Extensive saltmarsh and saltmeadow cordgrass wetland with some open water patches.

Photo 4 – Ponded area on southerly side of review area; within previously mapped wetland boundary.

Photo 5 – Former coal storage area with portion of old conveyor system.

Photo 6 – Edge of railroad tracks on the southeast corner of the review area, viewing south.

Photo 7 - Edge of railroad tracks on the southeast corner of the review area, viewing north.

Photo 8 - Wetland south of former coal storage area. This is where soil pits for WL-1 was collected looking south.

Photo 9 - Wetland south of former coal storage area. This is where soil pits for WL-1 was collected looking west

Photo 10- Soil Pit WL-1

Photo 11- Soil Pit UPL-1

Photo 12 – Area east of the railroad track and west of former BL England golf course looking north

Photo 13 – Area East of the railroad track and west of former BL England golf course looking west

Photo 14 – Area along northern boundary of former BL England golf course looking east and slightly north

Photo 15 – Area along northern boundary of former BL England golf course looking north and slightly west

Photo 16 -Diamond Back Terrapin female on south side of concreate wall in southeastern WRA near where soil pit data was collected

Photo 17 – Eastern rat snakeskin found along east side of the wetland review area

Attachment C. Wetland Delineation Datasheets

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: BL England City/County: Upper Tunshp/Cape May Sampling Date: 6/15/22
Applicant/Owner: Orsted Wind State: NJ Sampling Point: WL-1
Investigator(s): S. Seymour, D. Healy Section, Township, Range: Upper Township
Landform (hillslope, terrace, etc.): level Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): LRR T Lat: 39.289015 Long: -74.636846 Datum:
Soil Map Unit Name: Pawcatuck Transquaking Complex 0-1% slope NWI classification: E2EM1Pd
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil X, 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 ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): ~5"
Water Table Present?	Yes X	No ____	Depth (inches): to surface
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): to surface

Wetland Hydrology Present? Yes X No ____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WL-1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5)			
1. Spartina patens	95	Y	OBL
2. Phragmites australis	5	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of 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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 1.0

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WL-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	7/6 10YR	100					fine	very light saturated silt with roots
2"-20"	4/1 10YR	100					fine	saturated silty organic loam

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

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ 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): —

none observed

Hydric Soil Present? Yes X No ___

Remarks:

The surface layer of light-colored fine silt is presumably eroded material from the upland. Does not appear to be impeding the growth/density of the saltmeadow cordgrass. Does not appear to be actively eroding at this time.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: BL England City/County: Upper Tunshp / Cape May Sampling Date: 6/15/22
Applicant/Owner: Orsted Wind State: NJ Sampling Point: UPL-1
Investigator(s): S. Seymour, D. Healy Section, Township, Range: Upper Township
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 10%
Subregion (LRR or MLRA): LRR T Lat: 39.289015 Long: -74.636846 Datum:
Soil Map Unit Name: UdrB - Udorthents, refuse substratum NWI classification: NONE
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
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 ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No ____	
Wetland Hydrology Present?	Yes ____	No ____	

Remarks:
The slope is presumably old fill material due to presence of coal and coal cinders throughout the profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

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 (Four Strata) – Use scientific names of plants.

Sampling Point: UPL-1

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	10	N	FACU
2. Liquidambar styraciflua	55	Y	FAC
3. Juniperus virginiana	25	Y	FACU
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling/Shrub Stratum (Plot size: 15)			
1. Pinus rigida	5	N	FACU
2. Liquidambar styraciflua	30	Y	FAC
3. Morella pensylvanica	30	Y	FACU
4. Juniperus virginiana	10	N	FACU
5.			
6.			
7.			
8.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		

Herb Stratum (Plot size: 5)			
1. Juniperus virginiana	20	Y	FACU
2. Hieracium lachenalii	10	Y	UPL
3. Ionactis linariifolia	10	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Woody Vine Stratum (Plot size: 30)			
1. Parthenocissus quinquefolia	10	Y	FACU
2. Toxicodendron radicans	10	Y	FAC
3.			
4.			
5.			
	20 = Total Cover		
50% of total cover:	20% of 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: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	95	x 3 =	285
FACU species	85	x 4 =	340
UPL species	20	x 5 =	100
Column Totals:	200 (A)		725 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

Trees in the vicinity are 30-35' in height and 6-10" in diameter.

SOIL

Sampling Point: UPL-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	3/4 10YR	100					Coarse	mixed fill with coal chunks and cinders, sand + silt with 20% rounded quartz pebbles
8"-20"	5/3 10YR	100						mixed fill with chunks of coal, dry

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

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ 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): ___

none observed

Hydric Soil Present? Yes ___ No X

Remarks:

Soils appear to be historic fill material.

Attachment D. Letter of Interpretation (LOI)

State of New Jersey

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Use Regulation
Mail Code 501-02A
P.O. Box 420
Trenton, New Jersey 08625-0420
www.nj.gov/dep/landuse

CATHERINE R. McCABE
Commissioner

MAR 19 2019

Pete Murray c/o
RC Cape May Holding LLC
900 N. Shore Road
Beesley's Point, NJ 08223

RE: Freshwater Wetlands Letter of Interpretation: Line Verification
File No.: 0511-03-0011.4
Activity Number: FWW180001
Applicant: RC CAPE MAY HOLDINGS, LLC
Block(s) and Lot(s): [479, 74] [479, 76] [479, 76.01] [479, 94.01]
Upper Twp., Cape May County

Dear Mr. Murray:

This letter is in response to your request for a Letter of Interpretation to have Division of Land Use Regulation (Division) staff verify the boundary of the freshwater wetlands and/or State open waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, the Division is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon site inspections conducted by Division staff on November 14 and December 27, 2018, the Division has determined that the wetlands and waters boundary line(s) are accurately shown on the plan maps entitled: "PLAN OF FRESHWATER/WATERS DELINEATION, B.L. ENGLAND GENERATING STATION, TAX BLOCK 479 TAX LOTS 74, 76, 76.01 & 94.01, TOWNSHIP OF UPPER, CAPE MAY COUNTY, NEW JERSEY ", consisting of seventeen (17) sheets, (all sheets) dated October 14, 2008, (all sheets) last revised August 17, 2018, and prepared by Hyland Design Group, Inc. and further identified as:

Sheet 1 of 17 – "EXISTING CONDITIONS KEY SHEET,"
Sheets 2 through 14 of 17 – "FRESHWATER WETLANDS/WATERS DELINEATION,"
Sheets 15 through 17 of 17 – "WETLANDS/WATERS DELINEATION BEARING & DISTANCES."

The freshwater wetlands and waters boundary line(s), as determined in this letter, must be shown on any future site development plans. The line(s) should be labeled with the above file number and the following note:

"Freshwater Wetlands/Waters Boundary Line as verified by NJDEP"

Wetlands Resource Value Classification ("RVC")

In addition, the Division has determined that the resource value and the standard transition area or buffer required adjacent to the delineated wetlands are as follows:

Sheet 3 of 17:

- **Ordinary**: Line segments 230 through 232 and 249 through 252 [No wetland buffer].

- **Exceptional**: All remaining **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [150 ft. wetland buffer].

Sheet 7 of 17:

- **Intermediate**: Line segments 453 through 460 [50 ft. wetland buffer].

- **Exceptional**: All remaining **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [150 ft. wetland buffer].

Sheet 8 of 17:

- **Intermediate**: Line segments 460 through 472, 453, 473 through 486, 487 through 506, 529 through 537 [50 ft. wetland buffer].

- **Exceptional**: All remaining **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [150 ft. wetland buffer].

Sheet 9 of 17:

- **Exceptional**: All **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [150 ft. wetland buffer].

Sheet 10 of 17:

- **Ordinary:** Line segments 233 through 253, flag points W-453 through W-460 and W-461 through W-470 [No wetland buffer]

- **Exceptional:** Line segments 119 through 160, 168, 169 and 270 through 283 [150 ft. wetland buffer].

- **Intermediate**: All remaining **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [50 ft. wetland buffer].

Sheet 11 of 17:

- **Exceptional**: All **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [150 ft. wetland buffer].

Sheet 12 of 17:

- **Ordinary:** Flag points W-1011 through W-1016 [No wetland buffer]

- **Intermediate**: All remaining **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [50 ft. wetland buffer].

Sheet 13 of 17:

- **Ordinary:** Flag points W-1001 through W-1011 [No wetland buffer].

- **Intermediate**: All remaining **freshwater wetland** *delineation points* and *line segments* shown on the approved plan sheet referenced within this verification [50 ft. wetland buffer].

Sheet 14 of 17:

- **Intermediate:** Line segments 432 through 435 [No wetland buffer].

- **Exceptional**: Line segments 422 through 429 [150 ft. wetland buffer].

- **Mapped Coastal Wetlands**: Line segments 430 to 431 and 436 through 443 [a buffer of up to 300 feet may be imposed].

Please be advised, there are additional mapped coastal wetlands on Block: 479, Lots: 74, 76 and 76.01 as shown on Coastal Wetlands Map #161-2004 and as such is regulated pursuant to the Coastal Wetlands Act of 1970 (N.J.S.A. 13:9A-1 et seq.). Please be advised that if the proposed project is regulated under the Rules for Coastal Zone Management (N.J.A.C. 7:7E), then a buffer of up to 300 feet may be imposed adjacent to coastal wetlands.

RVC may affect requirements for wetland and/or transition area permitting. This classification may affect the requirements for an Individual Wetlands Permit (see N.J.A.C. 7:7A-9 and 10), the types of Statewide General Permits available for the property (see N.J.A.C. 7:7A-5 and 7) and any modification available through a transition area waiver (see N.J.A.C. 7:7A-8). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

Wetlands resource value classification is based on the best information available to the Department. The classification is subject to reevaluation at any time if additional or updated information is made available, including, but not limited to, information supplied by the applicant.

Under N.J.S.A. 13:9B-7a(2), if the Division has classified a wetland as exceptional resource value, based on a finding that the wetland is documented habitat for threatened and endangered species that remains suitable for use for breeding, resting or feeding by such species, an applicant may request a change in this classification. Such requests for a classification change must demonstrate that the habitat is no longer suitable for the documented species because there has been a change in the suitability of this habitat. Requests for resource value classification changes and associated documentation should be submitted to the Division at the address at the top of this letter.

General Information

Pursuant to the Freshwater Wetlands Protection Act Rules, you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter unless it is determined that the letter is based on inaccurate or incomplete information. Should additional information be

disclosed or discovered, the Division reserves the right to void the original letter of interpretation and issue a revised letter of interpretation.

Regulated activities proposed within a wetland, wetland transition area or water area, as defined by N.J.A.C. 7:7A-2.2 and 2.3 of the Freshwater Wetlands Protection Act rules, require a permit from this office unless specifically exempted at N.J.A.C. 7:7A-2.4. The approved plan and supporting jurisdictional limit information are now part of the Division's public records.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred on-site. This determination of jurisdiction extent or presence does not make a finding that wetlands or water areas are "isolated" or part of a surface water tributary system unless specifically called out in this letter as such. Furthermore, obtaining this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

Please be advised that any surface water features on the site or adjacent to the site may possess flood hazard areas and/or riparian zones and development within these areas may be subject to the Flood Hazard Area Control Act rules at N.J.A.C. 7:13. The Division can verify the extent of flood hazard areas and/or riparian zones through a flood hazard area verification under the application procedures set forth at N.J.A.C. 7:13-5.1.

Recording

Within 90 calendar days of the date of this letter, the applicant shall submit the following information to the clerk of each county in which the site is located, and shall send proof to the Division that this information is recorded on the deed of each lot referenced in the letter of interpretation:

1. The Department file number for the letter of interpretation;

2. The approval and expiration date of the letter of interpretation;

3. A metes and bounds description of the wetland boundary approved under the letter of interpretation;

4. The width and location of any transition area approved under the letter of interpretation; and

5. The following statement: "The State of New Jersey has determined that all or a portion of this lot lies in a freshwater wetland and/or transition area. Certain activities in wetlands and transition areas are regulated by the New Jersey Department of Environmental Protection and some activities may be prohibited on this site or may first require a freshwater wetland permit. Contact the Division of Land Use Regulation at (609) 292-0060 or http://www.nj.gov/landuse for more information prior to any construction onsite."

Failure to have this information recorded in the deed of each lot and/or to submit proof of recording to the Division constitutes a violation of the Freshwater Wetlands Protection Act rules and may result in suspension or termination of the letter of interpretation and/or subject the applicant to enforcement action pursuant to N.J.A.C. 7:7A-22.

Appeal Process

In accordance with N.J.A.C. 7:7A-21, any person who is aggrieved by this decision may request a hearing within 30 days of the date the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing

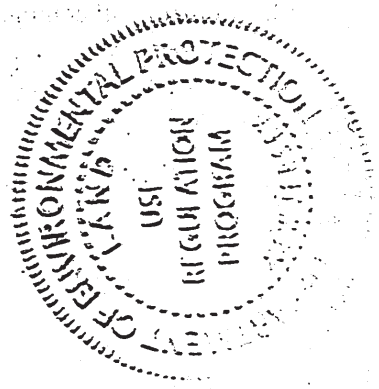
Requests, Mail Code 401-04L, P.O. Box 402, 401 East State Street, 7th Floor, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist found at www.state.nj.us/dep/landuse/forms. Hearing requests received after 30 days of publication notice may be denied. The DEP Bulletin is available on the Department's website at www.state.nj.us/dep/bulletin. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website www.nj.gov/dep/odrn for more information on this process.

Please contact April Grabowski of our staff by e-mail at April.Grabowski@dep.nj.gov or by phone at (609) 777-0454 should you have any questions regarding this letter. Be sure to indicate the Department's file number in all communication.

Sincerely,

Bob Kozachek, Environmental Specialist 3
Division of Land Use Regulation

c: Municipal Clerk
Municipal Construction Official
Agent (original)


DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR RESOURCES
PROGRAM

Ocean Wind
An Ørsted & PSEG project

Supplemental IBSP Delineation Memo

Memorandum DRAFT

Date:	Wednesday, November 30, 2022
Project:	Ocean Wind 1 Offshore Wind Farm Project
To:	USACE
From:	HDR Engineering Inc.
Subject:	Island Beach State Park(ISBP) Wetland Delineation Memo

The purpose of this memo is to identify specific changes made to the Ocean Wind 1 Wind Farm Project (Project) IBSP export cable route since the April 2022 submission of the USACE permit. Wetland A, B, C, and D were included in the April 2022 submission but the proposed export cable route has since changed and, therefore, HDR wetland scientist conducted further investigation at the IBSP site in April 2022 to account for the expanded impacts at Wetland E, F, and G. This memo includes descriptions of Wetland E, D and F as well as pictures, figures, and datasheets .

Wetland E – The area delineated as Wetland E is a 0.16 acre Palustrine Emergent/Scrub-Shrub, Broad-Leaved Deciduous Vegetation, Seasonally Flooded/Saturated based on Cowardin et al. (1979). Wetland E is located on the east side of Shore Road adjacent to Swimming Area 2 Parking Area. It is dominated by *Acer rubrum (FAC), Vaccimium corymbosum (FACW), Phragmites australis (FACW).* Soils in Wetland E were indicative of hydric soils due to the presence of a depleted matrix (Indicator F3). Hydrology indicators include surface water, saturation and water-stained leaves. A summary of wetland indicators is provided in Table 3.2.2-2.

An upland observation point was taken outside of the Wetland E and no wetland hydrology indicators were observed. Dominant species within the upland area included eastern red cedar and black cherry in the tree stratum and Virginia creeper in the woody vine stratum which does not provide a hydrophytic vegetation indicator through the dominance test and prevalence index. The soils did not meet the criterion for hydric soils.

Wetland F – The area delineated as Wetland F is a 0.13 acre Palustrine Emergent/Scrub-Shrub, Broad-Leaved Deciduous Vegetation, Seasonally Flooded/Saturated based on Cowardin et al. (1979). Wetland F is located on the east side of Shore Road adjacent to Swimming Area 2 Parking Area and south of Wetland E. It is dominated by *Vaccimium corymbosum (FACW), Phragmites australis (FACW),* and *Smilax rotundifolia (FAC).* Soils in Wetland F were indicative of hydric soils due to the presence of a depleted matrix (Indicator F3). Hydrology indicators include high water table within 4 inches of the surface, saturation and water-stained leaves. A summary of wetland indicators is provided in Table 3.2.2-3.

An upland observation point was taken outside of the Wetland F and no wetland hydrology indicators were observed. Dominant species within the upland area included American holly in the tree stratum, beach plum (*Prunus maritima*) and wooly beachheather (*Hudsonia tomentosa*) in the shrub stratum, and dandelion (*Taraxacum officinale*) which does not provide a hydrophytic vegetation indicator through the dominance test and prevalence index. The soils did not meet the criterion for hydric soils.

Wetland G – The area delineated as Wetland G is a 0.58 acre Palustrine Emergent/Scrub-Shrub, Broad- Leaved Deciduous Vegetation, Seasonally Flooded/Saturated based on Cowardin et al. (1979). Wetland G is located on the east side of Shore Road adjacent to the southern auxiliary parking lot of Swimming Area 2 south of Wetlands E and F. It is dominated by highbush blueberry (*Vaccimium corymbosum; FACW)* and swamp rose (*Rosa palustris; OBL*), and common reed *(FACW)* in the herbaceous stratum, and common greenbrier *(FAC)* in the vine stratum. Soils in Wetland G were indicative of hydric soils due to the presence of a depleted matrix (Indicator F3). Hydrology indicators include high water marks. A summary of wetland indicators is provided in Table 3.2.2-2.

An upland observation point was taken outside of the Wetland F and no wetland hydrology indicators were observed. Dominant species within the upland area included eastern red cedar in the tree stratum, and American beachgrass (*Ammophila breviligulata*) which does not provide a hydrophytic vegetation indicator through the dominance test and prevalence index. The soils did not meet the criterion for hydric soils.

Table 3.2.2-3. Summary of Wetland Delineation Field Survey Results

Wetland ID	Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicator	Size (Acres) or Linear Feet (LF)	NWI Cowardin Classification	Field Determined Cowardin Classification
Wetland E	Surface Water (A1), saturation (A3), water- stained leaves (B9)	*Acer rubrum (FAC), Vaccimium corymbosum (FACW), Phragmites australis (FACW)*	Depleted matrix (F3)	0.16 acre	None	PEM/SS1E
Wetland F	High water table (A2), saturation (A3), water- stained leaves	*Vaccimium corymbosum (FACW), Phragmites australis (FACW), Smilax rotundifolia (FAC)*	Depleted matrix (F3)	0.13 acre	None	PEM/SS1E
Wetland G	Water marks (B1)	*Rosa palustris (OBL), Vaccimium corymbosum (FACW), Phragmites australis (FACW), Smilax rotundifolia (FAC)*	Depleted matrix (F3)	0.58 acre	None	PEM/SS1E
			Totals for Site	0.58 acres		

FACW= Facultative Wetland species
FAC= Facultative species
OBL= Obligate species
FACU= Facultative Upland species

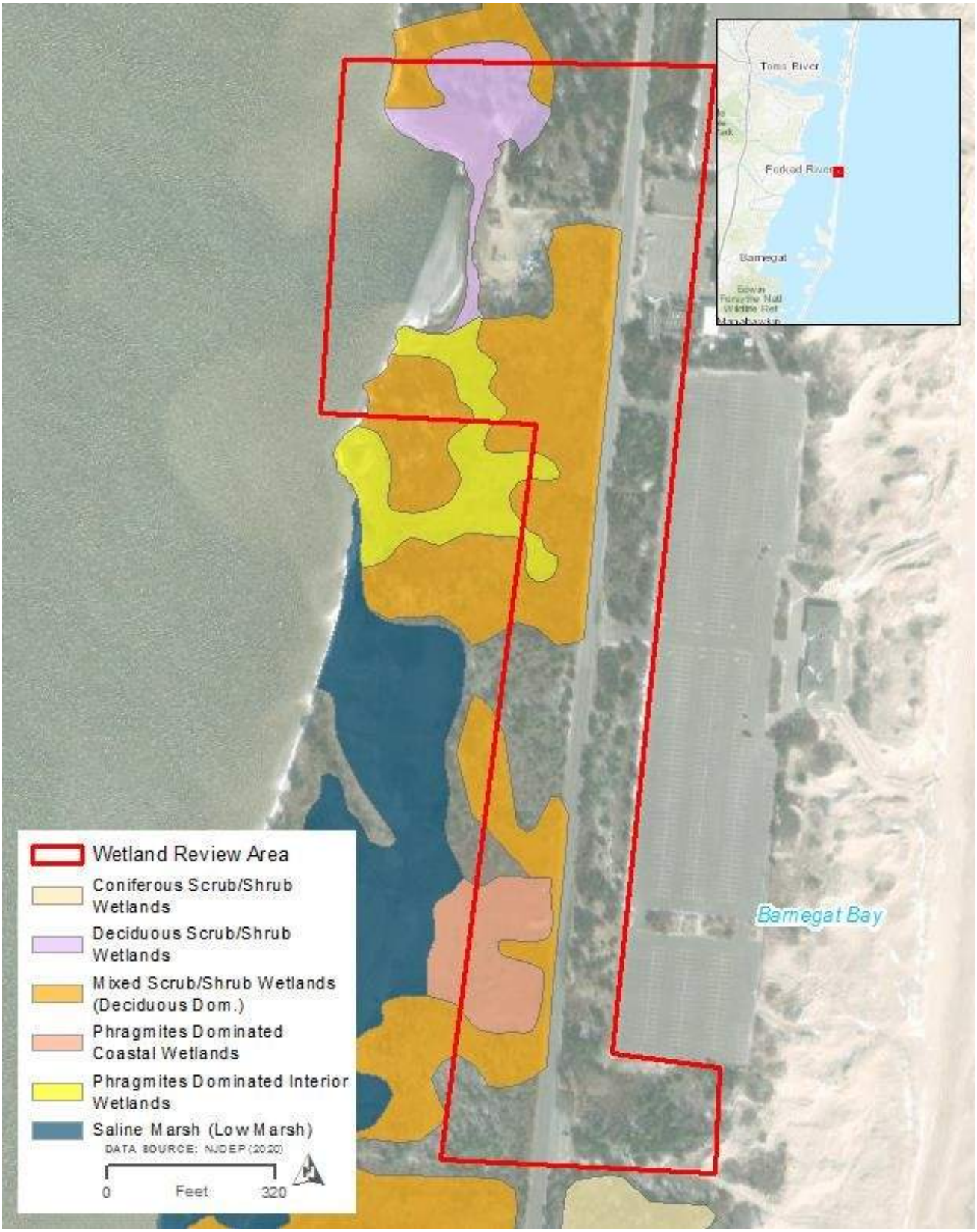


Figure 3.1.2-10. NJDEP Wetlands Map- IBSP

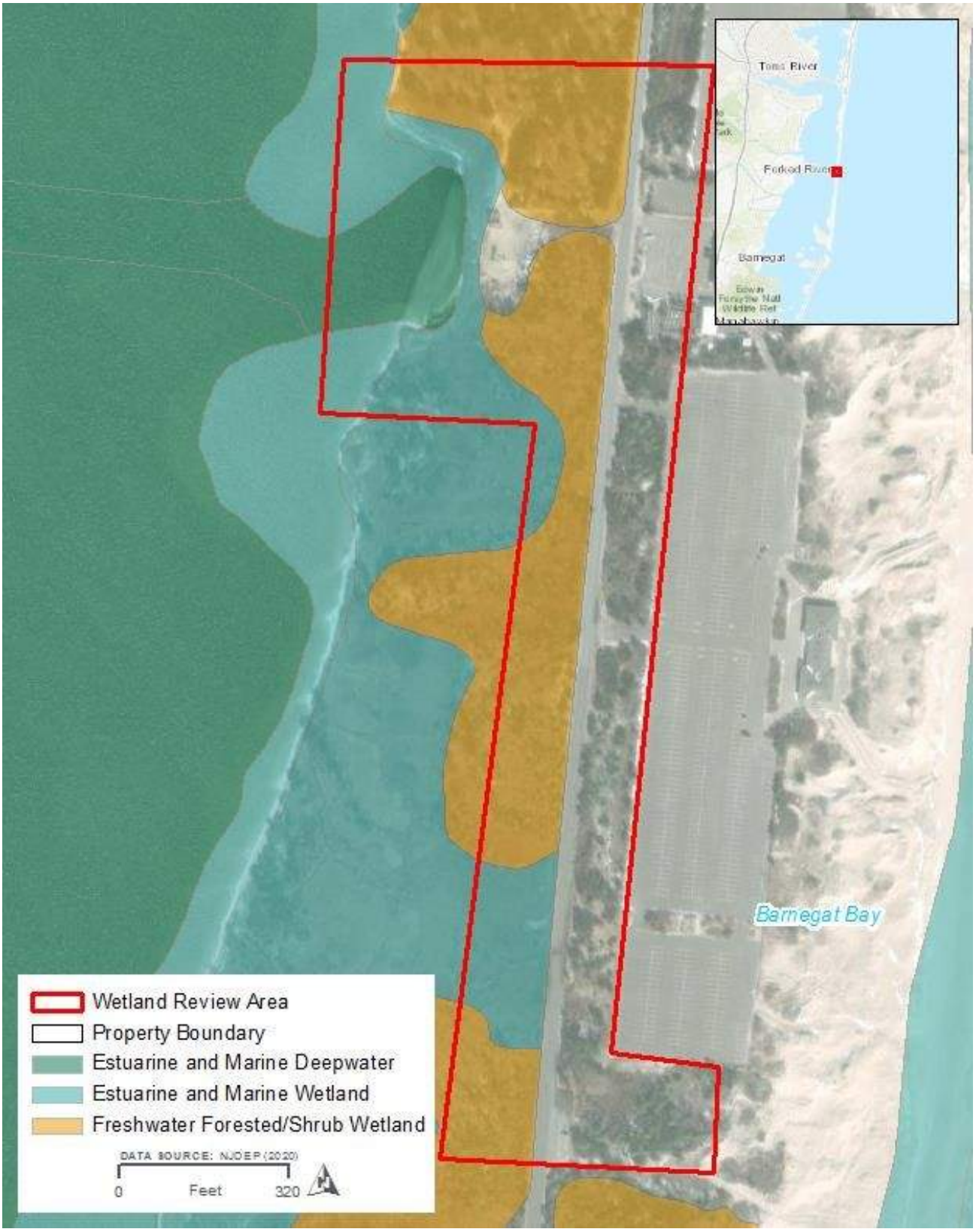


Figure 3.1.2-11. NWI Wetlands Map- IBSP

Figure 3.1.2-12. FEMA PFIRM Flood Hazard Area Map- IBS

Figure 3.2.2-3. Delineated Wetlands and Watercourses Map- IBSP

Photograph Location Map

Photo 11: Photo of Wetland E viewing west at culvert.

Photo 12: Wetland E Soil Pit

Orsted Ocean Wind Project	**Wetland Delineation - Island Beach State Park Photography**	DATE:	#VALUE!	**PHOTO**
		CREATED BY:	JC	**11 and 12**
		REVIEWED BY:	ZL	
		JOB NO:	10092078	

Photo 13: Photo of Wetland E upland soil pit

Photo 14: Viewing south at Wetland F

Orsted Ocean Wind Project	**Wetland Delineation - Island Beach State Park Photography**	DATE:	#VALUE!	**PHOTO**
		CREATED BY:	JC	**13 and 14**
		REVIEWED BY:	ZL	
		JOB NO:	10092078	

Photo 15: Photo of Wetland F soil pit

Photo 16: Viewing north within Wetland G

Orsted Ocean Wind Project	**Wetland Delineation - Island Beach State Park Photography**	DATE:	#VALUE!	**PHOTO**
		CREATED BY:	JC	**15 and 16**
		REVIEWED BY:	ZL	
		JOB NO:	10092078	

Photo 17: Photo viewing west at Wetland G

Photo 18: Wetland G soil pit

Orsted Ocean Wind Project	**Wetland Delineation - Island Beach State Park Photography**	DATE:	#VALUE!	**PHOTO**
		CREATED BY:	JC	**17 and 18**
		REVIEWED BY:	ZL	
		JOB NO:	10092078	

WETLAND DETERMINATION DATA FORM — Atlantic and Gulf Coastal Plain Region

Project/Site. Island Beach State Park City/County. Seaside Park, Ocean Sampling Date! 4/6/2022

ApplicanVOwner: Ocean Wind, LLC State: NJ Sampling Point: WLE-

Investigator(s)! Steve Seymour, James Eberhardt Section, Township, Range: Seaside Park

Landform (hillslope, terrace, etc.). Level Local relief (concave, convex. none): Level Slope (%): 0

Subregion (LRR or MLRA). LRR T Lat! 39.850656 Long: -74.088165 Datum: WGS84

Soil Map Unit Name. Hooksan fine sand, 2-10% slopes NWI classification. None

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 Na	Is the Sampled Area within a Wetland? Yes X NO
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks!

There is a concrete culvert headwall at the north end of the wetland beneath the access road. Flow is to the west toward Barnegat Bay

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators fmininluic of one is required; check all that apply)

X Surface Water (A1)	Aqua(ie Fauna (B13)	Secondary Indicators Iminimum of two required}
High Water Table (A2)	Mart Deposits (B15) (LRR U)	Surface Spit Cracks (B6)
X Saturation (A3)	Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)
Water Marks (B1)	Oxidized Rhizospheres along Living Roots (C3)	Drainage Patterns (B10)
Sediment Deposits (B2)	Presence of Reduced Iron tC4)	Moss Trim Lines (B16)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Dry—Season Water Table (C2)
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	Crayfish Burrows (CB)
Iron Deposits (B5)	Other (Explain in Remarks)	Saturation Visible an Aerial Imagery (Cg)
Inundation Visible on Aerial Imagery (B7)		Geomorphic Position (D2)
X Water-Stained Leaves (B9)		Shallow Aquitard (D3)
		FAC-neutral Test (D5)
		Sphag num moss (D8) (LRR 7, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches):

Water Table Present? Yes X No Depth (inches): 1" Saturation Present? Yes X No Depth (inches): 1" (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data tstream gauge. monitoring well, aerial photos, previous inspections), if available.

Remarks:

Water filled soil pit to within 1" of ground surface. Shallow ponded areas within wetlands are present. Very heavy rainfall (~1") in prior 24 hrs.

VEGETATION (Four Strata) — Use scientific names of plants.

Sampling Point: WLE-WL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species+	Indicator Status
1. Acer rubrum	40	Y	FAC
2.			
3.			
4.			
5.			
7.			
8.			
	40 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Saplin q/Shrub Stratum (Plot size: 15ft)			
1. Vaccinium corymbosum	60	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5 ft)			
1. Phragmites australis	40	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			12.
	40 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30 ft)			
1. Smilax rodundifolia	30	Y	FAC
2. Lonicera japonica	20	Y	FACU
3.			
4.			
5.			
	50 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Pre valenc e Index worksheet:

Total % Cover of	Multiply by	
OBL species	x 1 =	
FACW species 100	x 2 =	200
FAC species 70	x 3 =	210
FACU species 20	x 4 =	80
UPL species	x 5 =	
Column Totals: 190 (A)		490 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophilic Vegetation 2

- Dominance Test is >50%

3 - Prevalence Index is fi3.0'

Problematic Hydrophilic Vegetation' Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine — All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (If observed, list morphological adaptations below).

multi-trunked red maples; buttressed surface roots on red maples

SOIL

Sampling Point: WLE-WL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type'	Loc	Texture	Remarks
0-4"	3/1 10YR	100					fine sand	Moist organic loam
4-11"	4/2 10YR	100					sand	Silty sand
11-20"	6/2 10YR	90	6/4 10YR	10	RM	M	sand	Silty sand

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 1SOA)
- Sandy Mucky Mineral (S1) (LRR 0, S)
- Sandy Gleyed Matrix (54)
- Sandy Redox (55)
- Stripped Matrix (56)
- Dark Surface (57) (LRR P, S, T, U)
- Polyvalue Below Surface (58) (LRR S, T, U)
- Thin Dark Surface (59) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR 0)
- Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Mart (F10) (LRR U)
- Depleted Ochric (F11) (M LRA 151)
- Iron-Manganese Masses (F12) (LRR 0, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 1SOA, 150B)
- Piedmont Floodplain Soils (F19) (M LRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils':

- 1 cm Muck (A9) (LRR 0)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 1SOA, B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

'Indicators of hydrophilic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): None observed

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM — Atlantic and Gulf Coastal Plain Region

Project/Site. Island Beach State Park City/County. Seaside Park, Ocean Sampling Date! 04/06/2022

ApplicanVOwner: Orsted Ocean Wind, LLC State: NJ Sampling Point: WLE-UPL

Investigator(s)! Steve Seymour, James Eberhardt Section, Township, Range: Seaside Park

Landform (hillslope, terrace, etc.). Level Local relief (concave, convex. none): Level Slope (%): 0

Subregion (LRR or MLRA). LRR T Lat! 39.850693 Long: -74.088175 Datum: WGS84

Soil Map Unit Name. Hooksan fine sand, 0-10% slope NWI classification. None

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 Na X Hydric	Is the Sampled Area
Soil Present?	Yes No X	within a Wetland? Yes NO X
Wetland Hydrology Present?	Yes No X	

Remarks!

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators fmininluic of one is 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)
- Water-Stained Leaves (B9)
- Aqua(ie Fauna (B13)
- Mart Deposits (B15) (LRR U)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron tC4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators Iminimum of two required}

- Surface Spit Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry—Season Water Table (C2)
- Crayfish Burrows (CB)
- Saturation Visible an Aerial Imagery (Cg)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Sphag num moss (D8) (LRR 7, U)

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 tstream gauge. monitoring well, aerial photos, previous inspections), if available.

Remarks:

very heavy rainfall (~1") in prior 24 hours

VEGETATION (Four Strata) — Use scientific names of plants.

Sampling Point: WLE-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species+	Indicator Status
1. Juniperus virginiana	60	Y	FACU
2. Prunus serotina	20	Y	FACU
3.			
4.			
5.			
7.			
8.			
	80 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Vaccinium corymbosum	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5 ft)			
1. Phragmites australis	35	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30 ft)			
1. Parthenocissus quinquefolia	20	Y	FACU
2. Smilax rodundifolia	45	Y	FAC
3.			
4.			
5.			
	65 = Total Cover		

50% of total cover: _____ 20% of 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of	Multiply by	
OBL species	x 1 =	110
FACW species 55	x 2 =	
FAC species 45	x 3 =	135
FACU species 100	x 4 =	400
UPL species	x 5 =	
Column Totals: 200 (A)		645 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophilic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is fi3.0'

Problematic Hydrophilic Vegetation' Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine — All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WLE-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type'	Loc	Texture	Remarks
0"-8"	4/2 10YR	100					fine sand sandy loam	
8"-15"	4/2 10YR	100					sand	sand
15"-20"	4/2 10YR	100					sand	silty sand with 20% rounded quartz pebbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 1SOA)
- Sandy Mucky Mineral (S1) (LRR 0, S)
- Sandy Gleyed Matrix (54)
- Sandy Redox (55)
- Stripped Matrix (56)
- Dark Surface (57) (LRR P, S, T, U)
- Polyvalue Below Surface (58) (LRR S, T, U)
- Thin Dark Surface (59) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR 0)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Mart (F10) (LRR U)
- Depleted Ochric (F11) (M LRA 151)
- Iron-Manganese Masses (F12) (LRR 0, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 1SOA, 150B)
- Piedmont Floodplain Soils (F19) (M LRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils':

- 1 cm Muck (A9) (LRR 0)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 1SOA, B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

'Indicators of hydrophilic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: none observed
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM — Atlantic and Gulf Coastal Plain Region

Project/Site. Island Beach State Park City/County. Seaside Park, Ocean Sampling Date! 04/06/2022

ApplicanVOwner: Orsted Ocean Wind, LLC State: NJ Sampling Point: WLF-WL

Investigator(s)! Steve Seymour, James Eberhardt Section, Township, Range: Seaside Park

Landform (hillslope, terrace, etc.). level Local relief (concave, convex. none): level Slope (%): 0

Subregion (LRR or MLRA). LRR T Lat! 39.849096 Long: -74.088368 Datum: WGS84

Soil Map Unit Name. Hooksan fine sand, 2-10% slope NWI classification. none

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 No X

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 Na	Is the Sampled Area within a Wetland?	Yes X NO
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks!

Wetland is influenced by sheet flow runoff from adjacent paved roadway.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators fmininluic of one is required: check all that apply)

Surface Water (A1)	Aqua(ie Fauna (B13)	
X High Water Table (A2)	Mart Deposits (B15) (LRR U)	
X Saturation (A3)	Hydrogen Sulfide Odor (C1)	
Water Marks (B1)	Oxidized Rhizospheres along Living Roots (C3)	
Sediment Deposits (B2)	Presence of Reduced Iron tC4)	
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	
Algal Mat or Crust (B4)	Thin Muck Surface (C7)	
Iron Deposits (B5)	Other (Explain in Remarks)	
Inundation Visible on Aerial Imagery (B7)		
X Water-Stained Leaves (B9)		

Secondary Indicators Iminimum of two required}

- Surface Spit Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry—Season Water Table (C2)
- Crayfish Burrows (CB)
- Saturation Visible an Aerial Imagery (Cg)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Sphag num moss (D8) (LRR 7, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches):

Water Table Present? Yes X No Depth (inches): 4" Saturation Present? Yes X No Depth (inches): 4" (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data tstream gauge. monitoring well, aerial photos, previous inspections), if available.

Remarks:

Water filled soil pit to within 4" of ground surface, Very heavy rainfall (~1") in prior 24 hours.

VEGETATION (Four Strata) — Use scientific names of plants.

Sampling Point: WLF-WL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species+	Indicator Status
1.			
2.			
3.			
4.			
5.			
7.			
8.			
	0 = Total Cover		

50% of total cover:) 20% of total cover:

Saplin q/Shrub Stratum (Plot size: 15 ft)			
1. Vaccinum corymbosum	60	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 5 ft)			
1. Phragmites australis	60	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		

50% of total cover: 20% of total cover:

Woody Vine Stratum (Plot size: 30 ft)			
1. Smilax rotundifolia	20	Y	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		

50% of total cover: 20% of 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 (A/B)

Pre valenc e Index worksheet:

Total % Cover of	Multiply by	
OBL species	x 1 =	
FACW species 120	x 2 =	240
FAC species 20	x 3 =	60
FACU species	x 4 =	UPL
species	x 5 =	
Column Totals: 140 (A)		300 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophilic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is fi3.0'

Problematic Hydrophilic Vegetation' Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine — All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WLF-WL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type'	Loc	Texture	Remarks
0"-3"	2/1 10YR	100						organic loam
3"-20"	6/1 10YR	100						sand with organic steaking

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 1SOA)
- Sandy Mucky Mineral (S1) (LRR 0, S)
- Sandy Gleyed Matrix (54)
- Sandy Redox (55)
- Stripped Matrix (56)
- Dark Surface (57) (LRR P, S, T, U)
- Polyvalue Below Surface (58) (LRR S, T, U)
- Thin Dark Surface (59) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR 0)
- Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Mart (F10) (LRR U)
- Depleted Ochric (F11) (M LRA 151)
- Iron-Manganese Masses (F12) (LRR 0, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 1SOA, 150B)
- Piedmont Floodplain Soils (F19) (M LRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils':

- 1 cm Muck (A9) (LRR 0)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 1SOA, B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

'Indicators of hydrophilic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): none observed

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM — Atlantic and Gulf Coastal Plain Region

Project/Site. Island Beach State Park City/County. Seaside Park, Ocean Sampling Date! 04/06/2022

ApplicanVOwner: Orsted Ocean Wind, LLC State: NJ Sampling Point: WLF-UPL

Investigator(s)! Steve Seymour, James Eberhardt Section, Township, Range: Seaside Park

Landform (hillslope, terrace, etc.). level Local relief (concave, convex. none): level Slope (%): 0

Subregion (LRR or MLRA). LRR T Lat! 39.849083 Long: -74.088271 Datum: WGS84

Soil Map Unit Name. Hooksan fine sand, 2-10% slope NWI classification. none 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 Na X Hydric	Is the Sampled Area within a Wetland? Yes NO X
Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks!

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators fmininluic of one is 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)
- Water-Stained Leaves (B9)
- Aqua(ie Fauna (B13)
- Mart Deposits (B15) (LRR U)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron tC4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators Iminimum of two required}

- Surface Spit Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry—Season Water Table (C2)
- Crayfish Burrows (CB)
- Saturation Visible an Aerial Imagery (Cg)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Sphag num moss (D8) (LRR 7, U)

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 tstream gauge. monitoring well, aerial photos, previous inspections), if available.

Remarks:

very heavy rainfall (~1") in prior 24 hours

VEGETATION (Four Strata) — Use scientific names of plants.

Sampling Point: WLF-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species+	Indicator Status
1. iiex opaca	30	Y	FACU
2.			
3.			
4.			
5.			
7.			
8.			
	30 = Total Cover		
50% of total cover:		20% of total cover:	

Saplin q/Shrub Stratum (Plot size: 15 ft)			
1. Prunus maritima	10	Y	UPL
2. Yucca glauca	10	Y	UPL
3. Hudsonia tomentosa	25	Y	UPL
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
50% of total cover:		20% of total cover:	

Herb Stratum (Plot size: 5 ft)			
1. Taraxacum officinale	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
50% of total cover:		20% of total cover:	

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:		20% of 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Pre valenc e Index worksheet:

Total % Cover of	Multiply by	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species 40	x 4 =	160
UPL species 45	x 5 =	225
Column Totals: 85 (A)		385 (B)

Prevalence Index = B/A = 4.53

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophilic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is fi3.0'

Problematic Hydrophilic Vegetation' Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine — All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

substrate in vicinity is 60% bare/unvegetated sand

SOIL

Sampling Point: WLF-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type'	Loc	Texture	Remarks
0"-20"	6/2 10YR	100						dry sand

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 1SOA)
- Sandy Mucky Mineral (S1) (LRR 0, S)
- Sandy Gleyed Matrix (54)
- Sandy Redox (55)
- Stripped Matrix (56)
- Dark Surface (57) (LRR P, S, T, U)
- Polyvalue Below Surface (58) (LRR S, T, U)
- Thin Dark Surface (59) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR 0)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Mart (F10) (LRR U)
- Depleted Ochric (F11) (M LRA 151)
- Iron-Manganese Masses (F12) (LRR 0, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 1SOA, 150B)
- Piedmont Floodplain Soils (F19) (M LRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils':

- 1 cm Muck (A9) (LRR 0)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 1SOA, B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

'Indicators of hydrophilic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): none observed

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM — Atlantic and Gulf Coastal Plain Region

Project/Site. Island Beach State Park City/County. Seaside Park, Ocean Sampling Date! 04/06/2022

ApplicanVOwner: Orsted Ocean Wind, LLC State: NJ Sampling Point: WLG-WL

Investigator(s)! Steve Seymour, James Eberhardt Section, Township, Range: Seaside Park

Landform (hillslope, terrace, etc.). level Local relief (concave, convex. none): level Slope (%): 0

Subregion (LRR or MLRA). LRR T Lat! 39.848161 Long: -74.088441 Datum: WGS84

Soil Map Unit Name. Hooksan fine sand, 2-10% slope NWI classification. none 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 X significantly disturbed? Are "Normal Circumstances" present? Yes No X

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 Na	Is the Sampled Area within a Wetland?	Yes X NO
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks!

Wetland hydrology significantly affected by runoff from paved roadway to west and large paved parking lot into the northeast. Flowpath from parking lot into wetland present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators fmininluic of one is required: check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- X Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aqua(ie Fauna (B13)
- Mart Deposits (B15) (LRR U)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron tC4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators Iminimum of two required}

- Surface Spit Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry—Season Water Table (C2)
- Crayfish Burrows (CB)
- Saturation Visible an Aerial Imagery (Cg)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Sphag num moss (D8) (LRR 7, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches):

Water Table Present? Yes X No Depth (inches): 16" Saturation Present? Yes X No Depth (inches): 12" (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data tstream gauge. monitoring well, aerial photos, previous inspections), if available.

Remarks:

very heavy rainfall (~1") in prior 24 hours

VEGETATION (Four Strata) — Use scientific names of plants.

Sampling Point: WLG-WL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species+	Indicator Status
1.			
2.			
3.			
4.			
5.			
7.			
8.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Saplin q/Shrub Stratum (Plot size: 15 ft			
1. Rosa palustris	5	Y	OBL
2. Vaccinium corymbosum	10	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5 ft)			
1. Phragmites australis	90	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30			
1. Smilax rotundifolia	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Pre valenc e Index worksheet:

Total % Cover of		Multiply by	
OBL species	5	x 1 =	5
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	115 (A)		215 (B)

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophilic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is fi3.0'

Problematic Hydrophilic Vegetation' Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine — All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WLG-WL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type'	Loc	Texture	Remarks
0-1"	3/1 10YR	100					fine sand shallow	organic loam
1"-20"	6/1 10YR	100						sand with organic streaking

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 1SOA)
- Sandy Mucky Mineral (S1) (LRR 0, S)
- Sandy Gleyed Matrix (54)
- Sandy Redox (55)
- Stripped Matrix (56)
- Dark Surface (57) (LRR P, S, T, U)
- Polyvalue Below Surface (58) (LRR S, T, U)
- Thin Dark Surface (59) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR 0)
- Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Mart (F10) (LRR U)
- Depleted Ochric (F11) (M LRA 151)
- Iron-Manganese Masses (F12) (LRR 0, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 1SOA, 150B)
- Piedmont Floodplain Soils (F19) (M LRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils':

- 1 cm Muck (A9) (LRR 0)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 1SOA, B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

'Indicators of hydrophilic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: none observed

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

WETLAND DETERMINATION DATA FORM — Atlantic and Gulf Coastal Plain Region

Project/Site. Island Beach State Park City/County. Seaside Park, Ocean Sampling Date! 04/06/2022

ApplicanVOwner: Orsted Ocean Wind, LLC State: NJ Sampling Point: WLG-UPL

Investigator(s)! Steve Seymour, James Eberhardt Section, Township, Range: Seaside Park

Landform (hillslope, terrace, etc.). level Local relief (concave, convex. none): level Slope (%): 0

Subregion (LRR or MLRA). LRR T Lat! 39.848246 Long: -74.088345 Datum: WGS84

Soil Map Unit Name. Hooksan fine sand, 2-10% slope NWI classification. none

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 Na X Hydric Soil Present? Yes No X Wetland Hydrology Present? Yes No X	Is the Sampled Area within a Wetland? Yes NO X

Remarks!

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators fmininluic of one is 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)
- Water-Stained Leaves (B9)
- Aqua(ie Fauna (B13)
- Mart Deposits (B15) (LRR U)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron tC4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators Iminimum of two required}

- Surface Spit Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry—Season Water Table (C2)
- Crayfish Burrows (CB)
- Saturation Visible an Aerial Imagery (Cg)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Sphag num moss (D8) (LRR 7, U)

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 tstream gauge. monitoring well, aerial photos, previous inspections), if available.

Remarks:

very heavy rainfall (~1") in prior 24 hours

VEGETATION (Four Strata) — Use scientific names of plants. Sampling Point: WLG-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species+	Indicator Status
1. Juniperus virginiana	60	Y	FACU
2.			
3.			
4.			
5.			
7.			
8.			
	60 = Total Cover		
50% of total cover:	20% of total cover:		

Saplin q/Shrub Stratum (Plot size: 15 ft)			
1. Vaccinium corymbosum	20	Y	FACW
2. Myrica pennsylvania	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 5 ft)			
1. Ammophila breviligulata	40	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
50% of total cover:	20% of total cover:		

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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 (A/B)

Pre valenc e Index worksheet:

Total % Cover of	Multiply by	
OBL species	x 1 =	
FACW species 20	x 2 =	40
FAC species	x 3 =	
FACU species 60	x 4 =	240
UPL species 70	x 5 =	350
Column Totals: 150 (A)		630 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophilic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is fi3.0'

Problematic Hydrophilic Vegetation' Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 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 vine — All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

40% of area is bare/unvegetated sand

SOIL Sampling Point: WLG-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type'	Loc	Texture	Remarks
0"-20"	6/1 10YR	100					sand	dry sand

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Prairie Redox (A16) (MLRA 1SOA)
- Mucky Mineral (S1) (LRR 0, S)
- Sandy Gleyed Matrix (54)
- Sandy Redox (55)
- Stripped Matrix (56)
- Surface (57) (LRR P, S, T, U)
- Polyvalue Below Surface (58) (LRR S, T, U)
- Thin Dark Surface (59) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR 0)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Mart (F10) (LRR U)
- Depleted Ochric (F11) (M LRA 151)
- Iron-Manganese Masses (F12) (LRR 0, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 1SOA, 150B)
- Piedmont Floodplain Soils (F19) (M LRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark

Indicators for Problematic Hydric Soils':

- 1 cm Muck (A9) (LRR 0)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 1SOA, B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T) Stratified
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

'Indicators of hydrophilic vegetation and Coast wetland hydrology must be present, Sandy unless disturbed or problematic.

Restrictive Layer (if observed): none observed

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

root zone throughout soil profile