JULY 31 | 2023



Appendix U: Compiled USACE Preliminary Jurisdictional Determination Package

Coastal Virginia Offshore Wind Commercial Project

Dominion Energy®

Submitted by:
Dominion Energy Services, Inc.
600 East Canal Street,
Richmond, VA 23219

Prepared by:
Tetra Tech, Inc.
4101 Cox Road, Suite 120
Glen Allen, VA 23060

Submitted To:
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, VA 20166

APPENDIX U COMPILED USACE PJD PACKAGE
REVISION LOG

Revision Number	Date	Description	Signed
1	6/2021	Initial release	Tetra Tech
2	10/2021	Updated based on BOEM comments and Project updates	Tetra Tech
3	2/2022	Updated based on BOEM comments and Project Updates	Tetra Tech
4	5/6/2022	Updated based on BOEM comments and Project updates	Tetra Tech
5	2/2023	Updated to reflect approved PJD package. Package includes initial submission, revised mapping, and approval letters	Tetra Tech
6	7/2023	Updated to reflect PJD addendum submitted to the USACE June 2023	Tetra Tech

ATTACHMENT U-1: USACE PJD SUBMISSION (JULY 2022)

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

July 15, 2022

VIA EMAIL

US Army Corps of Engineers
Attn: Nicole Woodward
803 Front Street
Norfolk, Virginia 23510
Nicole.L.Woodward@usace.army.mil

RE: **Request for Preliminary Jurisdictional Determination**
Coastal Virginia Offshore Wind (CVOW) Project
Cities of Virginia Beach and Chesapeake, Virginia
Start – Latitude: 36.8161867° Longitude: -75.9689511°
Terminus – Latitude: 36.6888348° Longitude: -76.1884057°

Dear Ms. Woodward,

Dominion Energy Virginia (the "Company") is pleased to submit the enclosed Preliminary Jurisdictional Determination (PJD) for the Coastal Virginia Offshore Wind (CVOW) project. This project is located in the Cities of Virginia Beach and Chesapeake and includes a proposed offshore wind generation facility with an approximate 18.6-mile triple circuit 230-kV onshore transmission line. This PJD package includes three separate PJD requests based upon landowner entities as noted below.

- CVOW – SMR Property
- CVOW – NAVY NAS Oceana Property
- CVOW – Harpers to Fentress Property

Should you have any questions regarding this submittal, please contact Rachel Studebaker with Dominion Energy via email at Rachel.M.Studebaker@dominionenergy.com or by phone at (804) 217-1847.

Sincerely,

Jason P. Ericson
Director, Environmental Services

Attachment: PJD Application Package

CVOW – SMR Property

TETRA TECH

July 15, 2022

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Subject: [Supplemental Filing] Request for Preliminary Jurisdictional Determination, State Military Reservation (SMR)
Start: 75.9689511°W 36.8161867°N
End: 75.9856298°W 36.8173025°N

To Whom It May Concern,

Tetra Tech, Inc. (Tetra Tech) has been retained by Virginia Electric and Power Company, doing business as Dominion Energy Virginia (Dominion Energy) to conduct a field investigation/verification of wetlands and waters of the U.S. (WOTUS) on the Coastal Virginia Offshore Wind Project (Project). Dominion Energy is conducting an evaluation of the Project area between the Cable Landing Location in the City of Virginia Beach and the final connection point, Fentress Substation, located in the City of Chesapeake. The investigation described herein and the commensurate Preliminary Jurisdictional Determination (PJD), have been split into three components that include the following: 1) State Military Reservation (SMR) and Former Naval Air Station (NAS) Oceana South Virginia Beach Annex, 2) Navy owned property (NAS Oceana) that does not include the NAS Oceana South Virginia Beach Annex, and 3) the linear routing from NAS Oceana to Fentress Substation (Harpers to Fentress). This report highlights the findings of the investigation associated with SMR (Component 1).

The approximate 38.87-acre study area is located within the Mid Atlantic Coastal Basin in Virginia Beach, Virginia. Features were identified and delineated using the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain (Version 2.0)*. Where appropriate, aquatic resources were mapped via flagging and located with sub-meter GPS receivers. The data sheets/photolog used in this determination are attached along with the delineation mapbook showing the mapped aquatic resources and corresponding datapoints.

On behalf of Dominion Energy, Tetra Tech is submitting this information to the U.S. Army Corps of Engineers (USACE) for their review and approval for issuance of a PJD. To assist the entities involved with the review and approval of this delineation, please find enclosed the PJD Request Form (Appendix A), Wetland Delineation Report Site Summary (Appendix B), Figures and Mapbook (Appendix C), Data Sheets (Appendix D), and the Previous Delineation Report(s) for which this request is updating/modifying (Appendix E). Upon review, Tetra Tech staff would be pleased to meet with USACE onsite to review the information provided, as necessary. Please contact James Cook for any requests related to this matter.

Respectfully submitted,



James Cook, PWS
Environmental Scientist
Email: james.cook@tetratech.com

Enclosure

CC Rachel Studebaker – Dominion Energy
Janelle Lavallee – Tetra Tech
Nathalie Schils – Tetra Tech

Appendices:

Appendix A: Preliminary Jurisdictional Determination Request Form
Appendix B: Wetland Delineation Report Site Summary
Appendix C: Figures and Mapbook
- Figure 1: Overall Site Map (USGS Topo)
- Figure 2: Delineation Mapbook
- Figure 3: NWI Mapbook

Appendix D: Data Sheets
Appendix E: Previous Delineation Report(s)

Tetra Tech, Inc.
4433 Corporation Lane, Suite 300. Virginia Beach, VA 23462
Tel 540-841-4752 Fax 757-461-4148 tetratech.com

APPENDIX A: PRELIMINARY JURISDICTIONAL DETERMINATION REQUEST FORM

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: July 2022
2. Project Name: CVOW - SMR Property
3. City or County where property located: City of Virginia Beach
4. Address of property and directions (attach a map of the property location and a copy of the property plat): The site is situated south of Rudee Inlet, north of South Birdneck Road, west of General Booth Boulevard, and can be accessed from General Booth Boulevard (via the Virginia Aquarium and Marine Science Center overflow parking lot).
5. Coordinates of property (if known): Start: 75.9689511°W 36.8161867°N End: 75.9856298°W 36.8173025°N
6. Size of property in acres: 38.87
7. Tax Parcel Number / GPIN (if available):
8. Name of Nearest Waterway: Lake Christine and Atlantic Ocean

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:
   Environmental Constraints Analysis

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☒ YES ☐ NO ☐ UNKNOWN

    If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available: Stantec - approved by Brian Denson NAO-2018-0436

Property Owner Contact Information:

Property Owner Name: Virginia Department of Military Affairs, Charlton Dunn CFMO
Mailing Address: Building 316, Fort Pickett VA
City: State: Zip: Blackstone, VA 23824
Daytime Telephone: 540-290-0183
E-mail Address: charlton.t.dunn.civ@army.mil

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Kevin Fields - Virginia Electric and Power Company
Mailing Address: 10900 Nuckols Road, 4th Floor
City: State: Zip: Glen Allen, Virginia 23060
Daytime Telephone: 804-771-3769
E-mail Address: ET.Environmental@dominionenergy.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

DUNN.CHARLTON.TODD.1049404634 Digitally signed by DUNN.CHARLTON.TODD.1049404634 Date: 2022.07.14 18:10:54 -04'00'

Property Owner's Signature

14 JUL 22

Date

APPENDIX B: WETLAND DELINEATION REPORT SITE SUMMARY

Wetland Delineation Report Site Information Summary
Coastal Virginia Offshore Wind Commercial Project
SMR Site Delineation
203 Red Horse Dr,
Tax Parcel 24168531420000 (38.87 Acres),
Virginia Beach, Virginia

Date
July 15, 2022

Latitude/ Longitude in Decimal Degrees using coordinate plane (NAD 1983)
Start: 75.9689511°W 36.8161867°N
End: 75.9856298°W 36.8173025°N

Has a previous delineation or JD been performed? If so, please provide USACE Project Number: NAO-2018-0436 (PJD)

Hydrologic Unit Code (HUC)
02040304 – Eastern Lower Delmarva

USGS Topographic Sheet
Virginia Beach Quadrangle, 2019 (7.5-Minute Series) is depicted in Appendix C Figure 1.

Nearest Waterbody (example given)
Atlantic Ocean lies approximately 500 feet east of the eastern most edge of the project area.
Lake Christine lies within the project area.
Owl Creek lies approximately 450 feet northwest of the western most edge of the project area.

Delineation Methods
Features were identified and delineated using the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain (Version 2.0)*. The 2016 National Wetland Plant List was used for this delineation.

On-Site Investigation Date
Wetland boundary delineation and site data collection conducted in October 2017.

Wetland Delineation Plan
The proposed wetland boundaries and Data Sampling Point locations are depicted on the plan entitled Appendix C Figure 2 Coastal Virginia Offshore Wind Commercial Project, Delineation Mapbook: SMR PJD, prepared by Tetra Tech Offshore Wind Group on 07/01/2022.

Wetland Investigation Results

Wetlands: A total of approximately 4.36 acres of non-tidal wetlands were found within the 38.87-acre project area during the previous investigation. Of the total proposed wetland area, approximately 0.81 acre is palustrine forested (PFO) wetlands, 0.15 acre is palustrine scrub-shrub (PSS) wetlands, 1.23 acres are palustrine emergent (PEM) wetlands, and 2.17 acres are lacustrine unconsolidated bottom (L1UB) wetlands. Features are considered either relatively isolated (sampling point data sheets in Appendix D, referenced in Appendix C Figure 2) or directly tied to waterbodies (Lake Christine).

Stream Channels: No features were classified as streams within the project area. However, the project area does cross Lake Christine twice (75.9722515°W 36.8165732°N, 75.9746364°W 36.8168951°N).

Other Waters: N/A

Water bodies onsite identified as Section 10: N/A

Uplands: Approximately 34.51 acres of the subject project were classified as upland. Representative sampling points in Appendix D (48, 46, 32) show general site characteristics for these upland areas.

100-Year Floodplains
As depicted on the Federal Emergency Management Agency's (FEMA) on-line Flood Insurance Rate Maps #5155310129G and #5155310128G, effective date 1/16/2015, the project area lies within Zone X, areas of minimal flood hazard; Zone AE, base flood elevation and 100-year floodplain; and Zone VE, coastal areas with high flood hazard.

National Wetlands Inventory
The online National Wetland Inventory (Appendix C, Figure 3) show wetlands throughout the project area, largely in association with the above-mentioned waterbodies/waterways.

USDA Soil Survey
The on-line USDA Natural Resource Conservation Service Soil Survey – SSURGO (Appendix C, Figure 2) identifies the following soils within the project area:

Table 1. SSURGO NRCS Soil Survey – Soil Series within Project Area

Reference Number	Soil Series	Acreage
1	Acredale silt loam	4.86
3	Augusta loam	1.69
6	Beaches	2.54
7	Bojac fine sandy loam	0.59
8	Chapanoke silt loam	4.49
13	Dragston fine sandy loam	0.48
15	Duckston fine sand	11.74
19	Munden fine sandy loam	1.37
21	Nawney silt loam	0.11
22E	Newhan fine sand, 2 to 30 percent slopes	4.01

33E	Rumford fine sandy loam, 6 to 35 percent slopes	0.01
36	Tetotum loam	2.51
38	Tomotley loam	0.66
42	Urban land	0.48
W	Water	2.65
43	Yeopim silt loam	0.66

Notes:
All features at SMR were mapped in 2018 and have not been revisited since confirmation. A subset of these features, clipped to the revised project area, comprise the entirety of this package. This request is for reverification of those specific features (Appendix C, Figure 2) in anticipation that the associated permitting activity timeline will exceed the lifetime of the previous PJD (NAO-2018-0436).

Waters Table:
Table 2 provides a summary of all mapped wetlands within the project area at SMR. No streams or ditches were identified within the project area at SMR.

Table 2. Mapped Wetlands within the Project Area at State Military Reservation (SMR)

Wetland ID	County	Latitude[1]	Longitude[1]	Cowardin Class[2]	HGM[3]	Water Type[4]	Size (Acres)[6]	Size (square feet)[5]	Mapbook Page #
SMR-W-1	Virginia Beach	36.816620	-75.969026	PEM	Depressional	Isolate	0.043	1,872.130	1
SMR-W-2	Virginia Beach	36.815883	-75.968715	PEM	Depressional	Isolate	0.864	37,643.884	1
SMR-W-3	Virginia Beach	36.815969	-75.968264	PEM	Depressional	Isolate	0.160	6,970.108	1
SMR-W-4	Virginia Beach	36.815669	-75.969889	PSS	Depressional	Isolate	0.154	6,713.341	1
SMR-W-7	Virginia Beach	36.816553	-75.973026	PFO	Lacustrine	RPWWD	0.329	14,346.108	1,2
SMR-W-11	Virginia Beach	36.816107	-75.978762	PEM	Depressional	Isolate	0.101	4,401.438	2
SMR-W-12	Virginia Beach	36.816068	-75.978424	PEM	Slope	Isolate	0.059	2,583.709	2
SMR-W-25	Virginia Beach	36.816431	-75.978490	PFO	Slope	RPWWD	0.014	599.551	4
SMR-W-57	Virginia Beach	36.816618	-75.971628	PFO	Lacustrine	RPWWD	0.151	6,593.239	1
SMR-W-71	Virginia Beach	36.816175	-75.975109	PFO	Lacustrine	RPWWD	0.006	275.451	2
SMR-W-73	Virginia Beach	36.816614	-75.971756	PFO	Lacustrine	RPWWD	0.091	3,976.777	1
SMR-W-80	Virginia Beach	36.816459	-75.972684	PFO	Lacustrine	RPWWD	0.114	4,979.622	1,2
SMR-W-81	Virginia Beach	36.816635	-75.974385	PFO	Lacustrine	RPWWD	0.106	4,601.765	1,2
SMR_WB_4	Virginia Beach	36.816815	-75.972183	L1UBH	Lacustrine	RPWWD	2.166	94,339.13	1,2

Notes:

1 In decimal degrees. Coordinates show wetland test pit locations.

2 PEM = Palustrine Emergent
PFO = Palustrine Forested
PSS = Palustrine Scrub-Shrub
L1UBH = Lacustrine Unconsolidated Bottom

3 HGM = Hydrogeomorphic

4 RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs)
Isolate = Isolated (interstate or intrastate) waters, including isolated wetlands

5 Size of wetlands with open boundaries may be larger than shown in this table. Wetland size shown is the size of the wetland delineated and illustrated on Aquatic Resource Mapbook

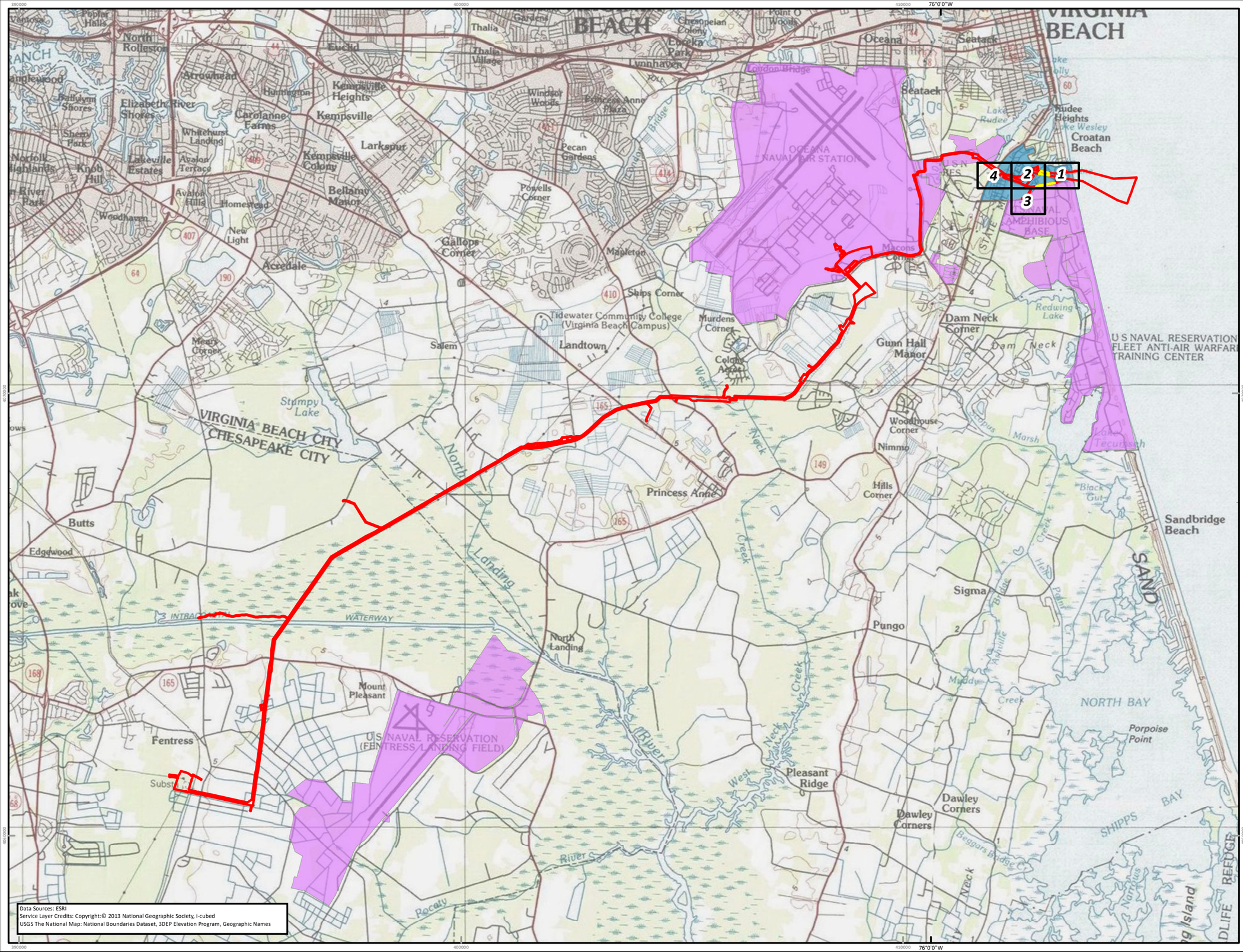
APPENDIX C: FIGURES AND MAPBOOK

Figure 1. Overall Site Map (USGS Topo)

Figure 2. Delineation Mapbook

Figure 3: National Wetlands Inventory Mapbook

FIGURE 1: OVERALL SITE MAP (USGS TOPO)



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: PJD

Dominion Energy

- Mapbook Page
- Former NAS Oceana South Virginia Beach Annex
- Project LOD
- US Navy
- State Military Reservation

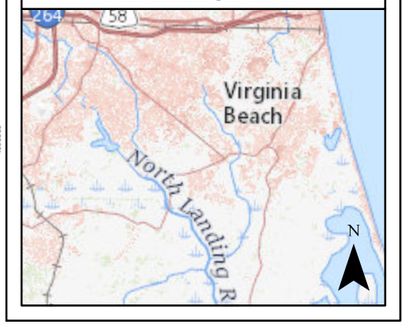
Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 0.5 1 1.5 2 Miles

0 0.5 1 1.5 Nautical Miles

0 1 2 3 Kilometers

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_SMR_Mapbook_CoverSheet.mxd

FIGURE 2: DELINEATION MAPBOOK

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Parcel Line

- Mapbook Page
- Project LOD
- SMR

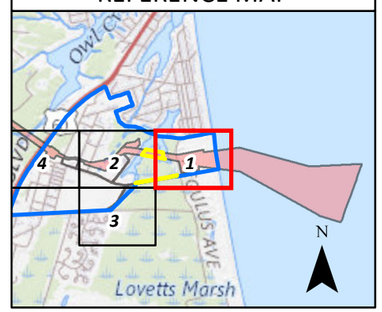
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\P3D_AquaticResources_SMR_MapBook_Aerial.mxd

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Parcel Line

- Mapbook Page
- Project LOD
- SMR

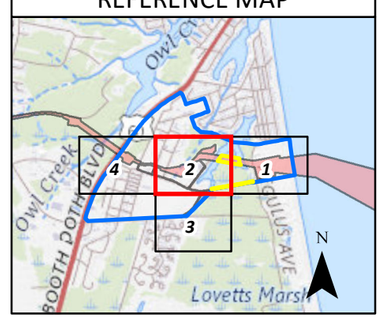
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

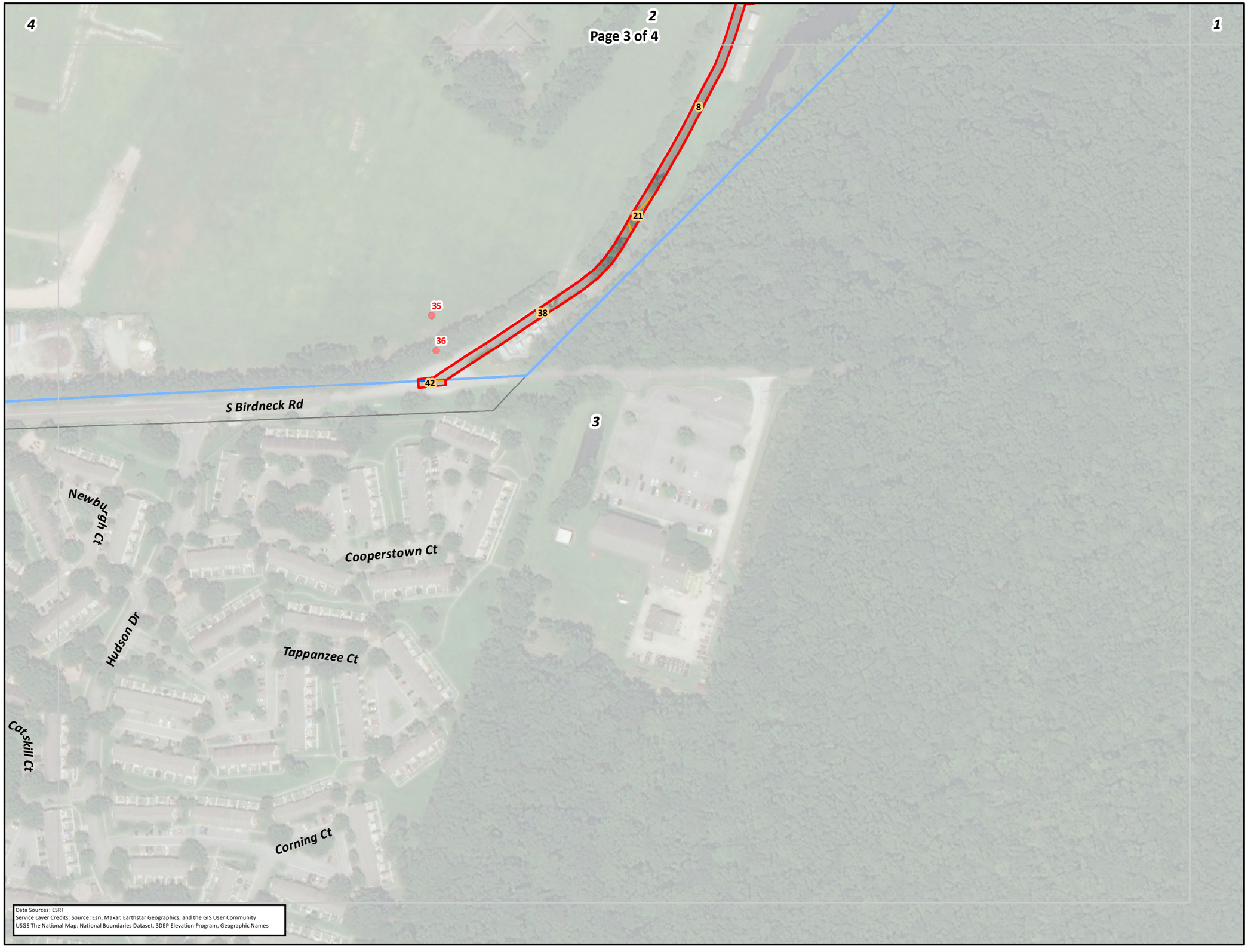
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Parcel Line
- Mapbook Page
- Project LOD
- SMR

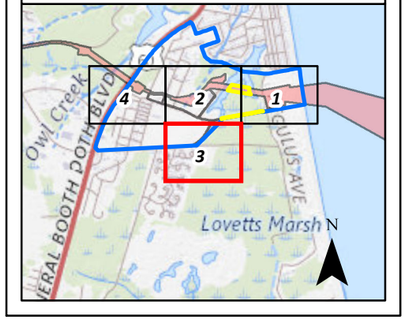
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

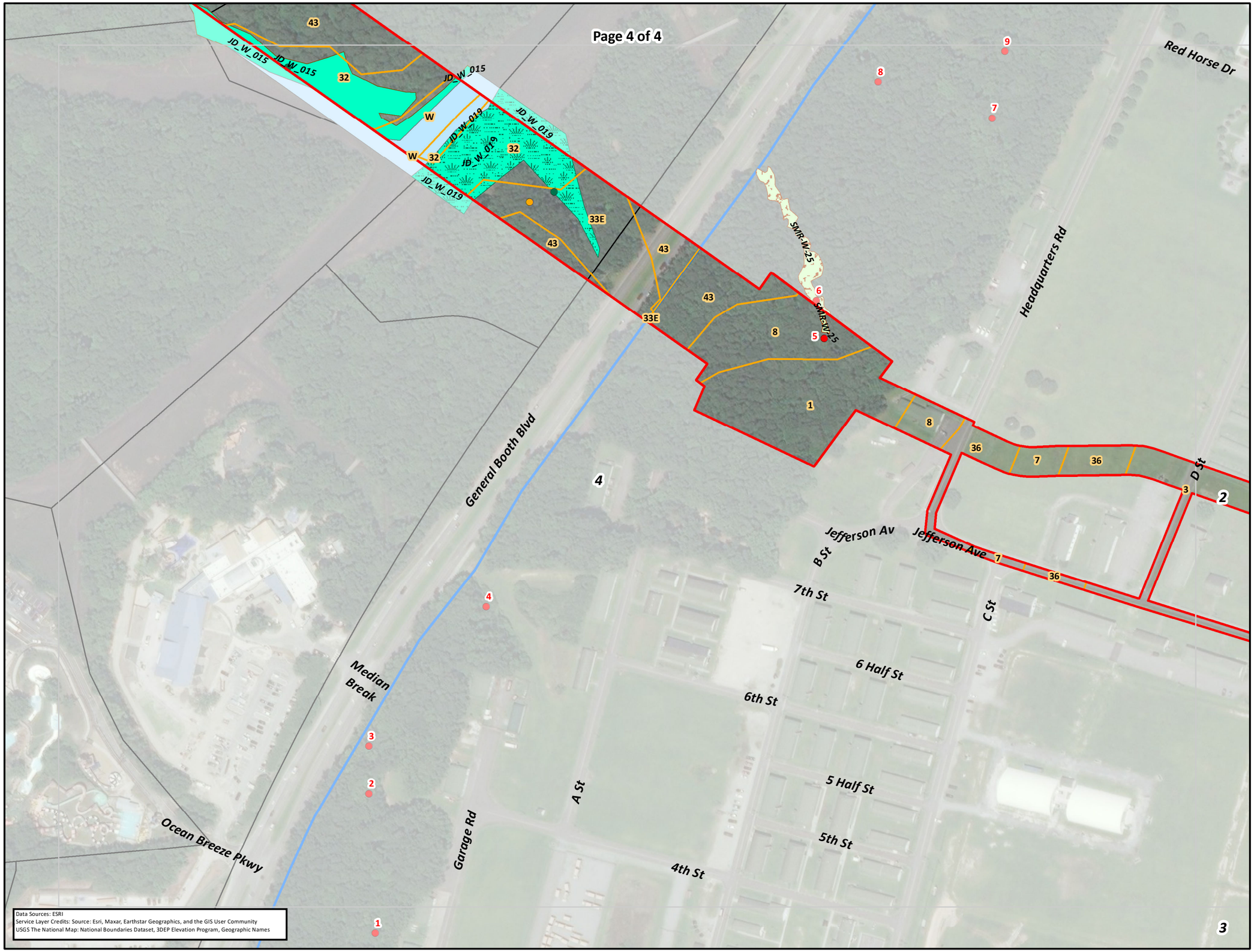
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Parcel Line
- Mapbook Page
- Project LOD
- SMR

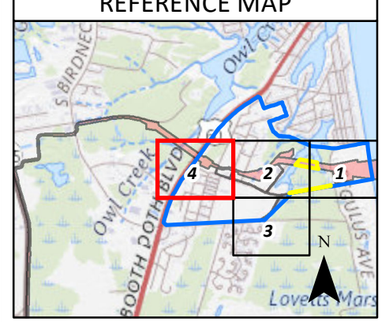
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

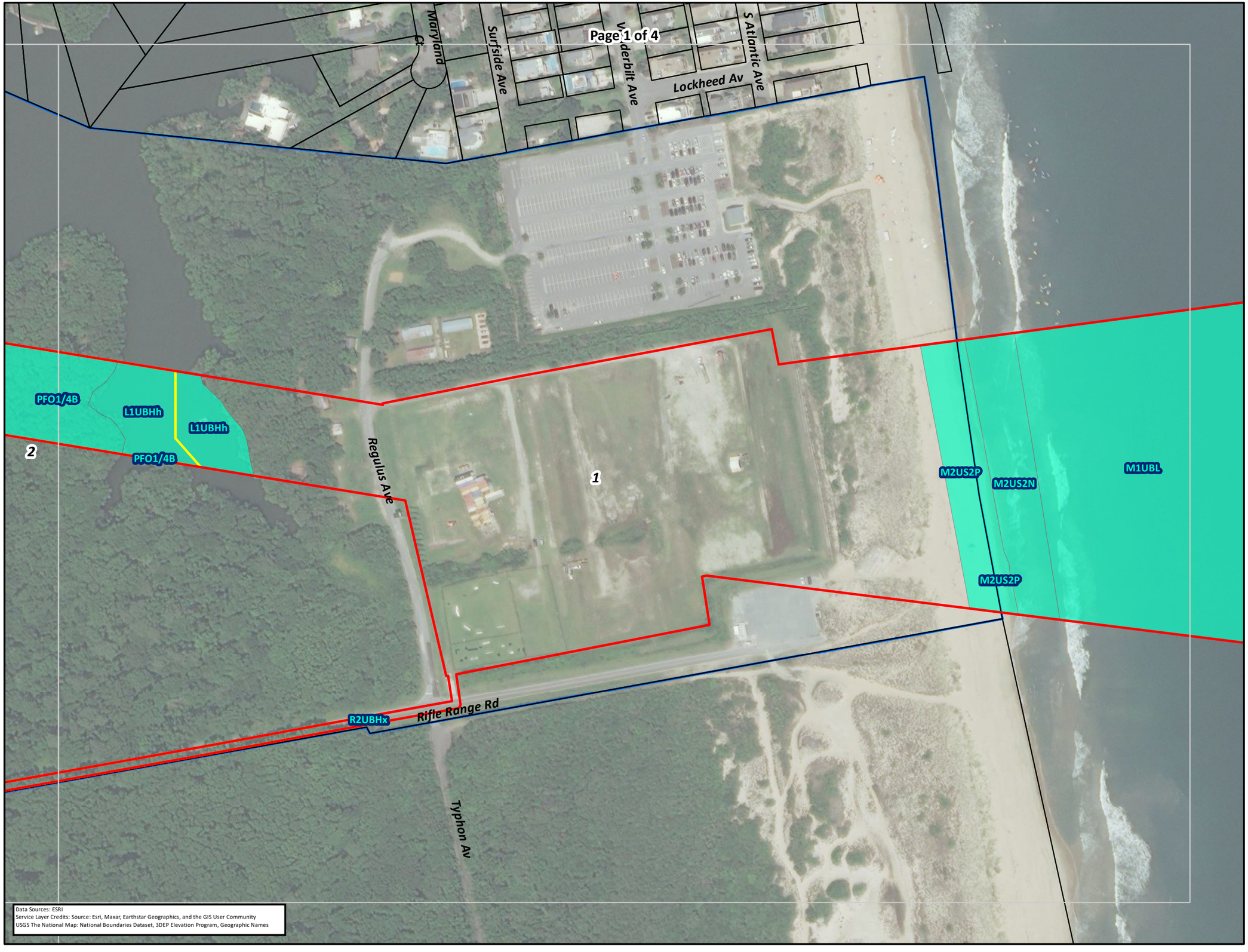
REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_SMR_Mapbook_Aerial.mxd

FIGURE 3: NATIONAL WETLANDS INVENTORY MAPBOOK



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy

Tt

- Former NAS Oceana South Virginia Beach Annex
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- SMR

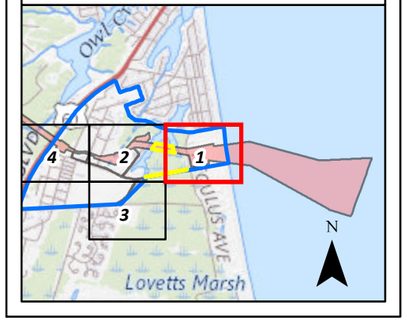
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

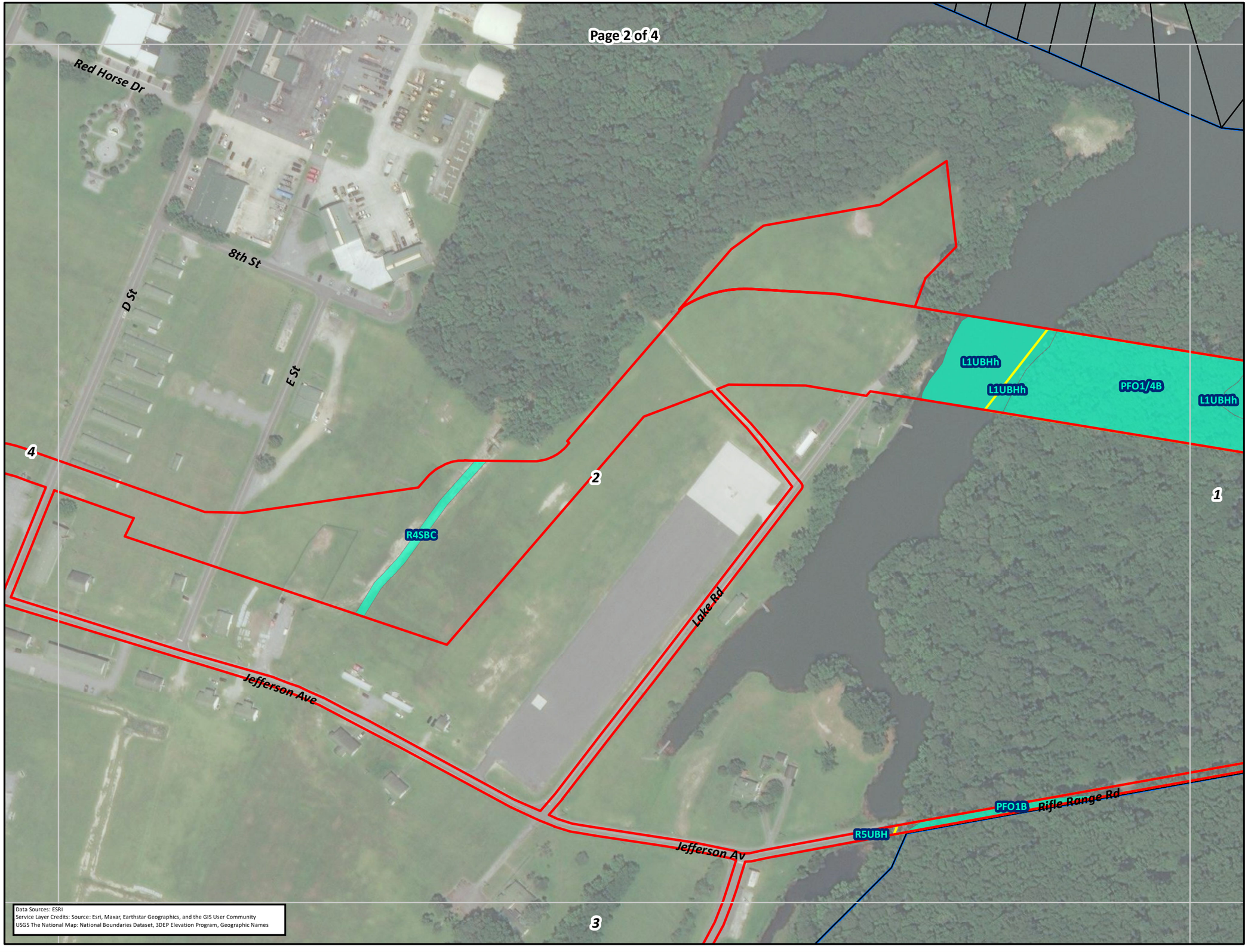
Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy®

Former NAS Oceana South Virginia Beach Annex
Parcel Line
NWI Wetland
Mapbook Page
Project LOD
SMR

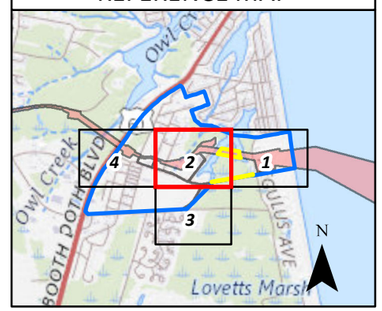
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

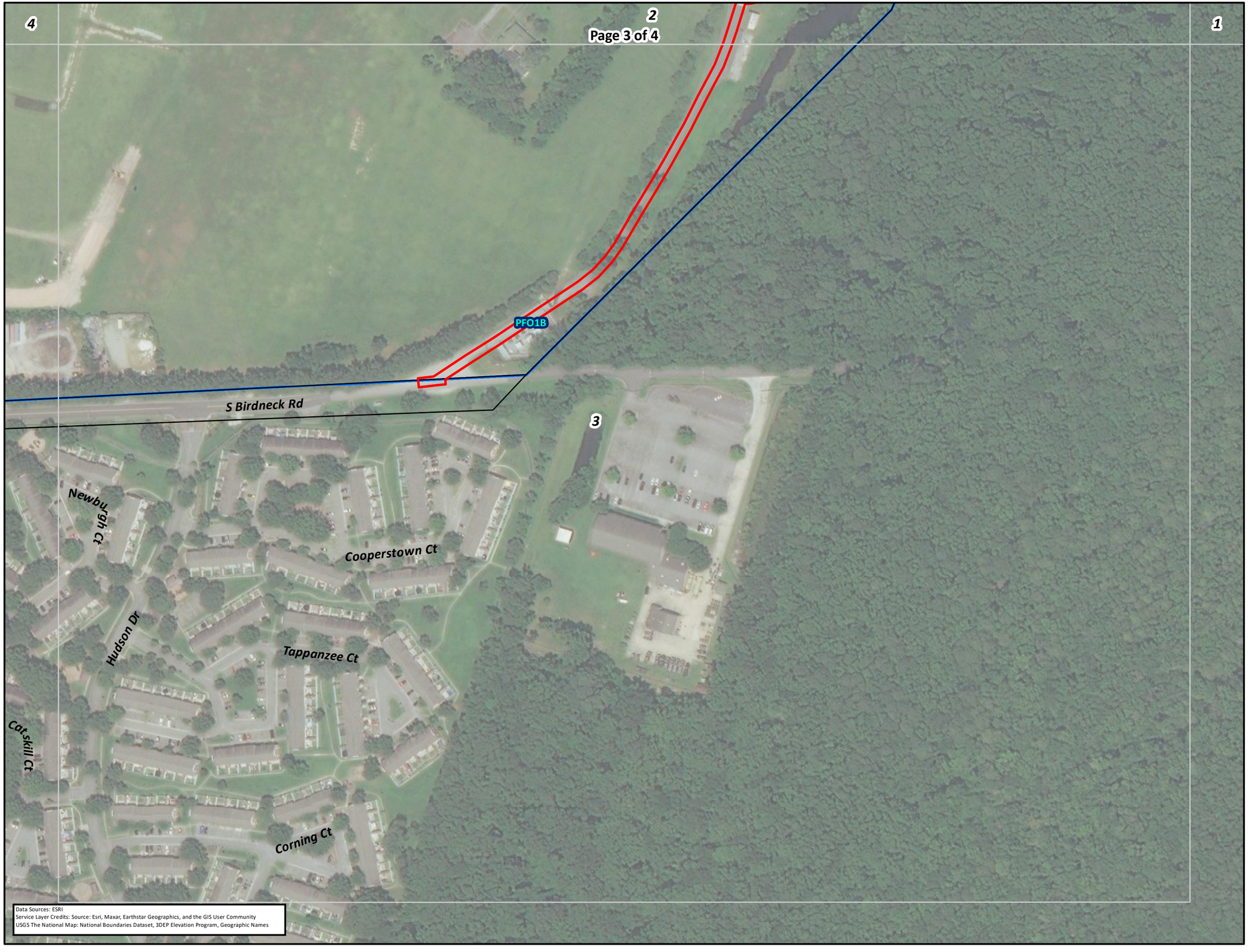
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy®

- Former NAS Oceana South Virginia Beach Annex
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- SMR

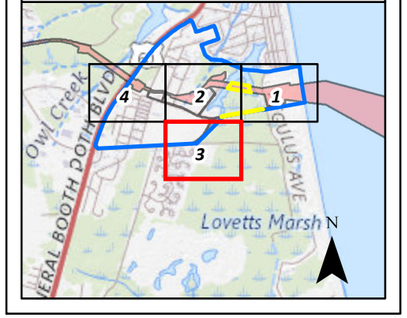
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

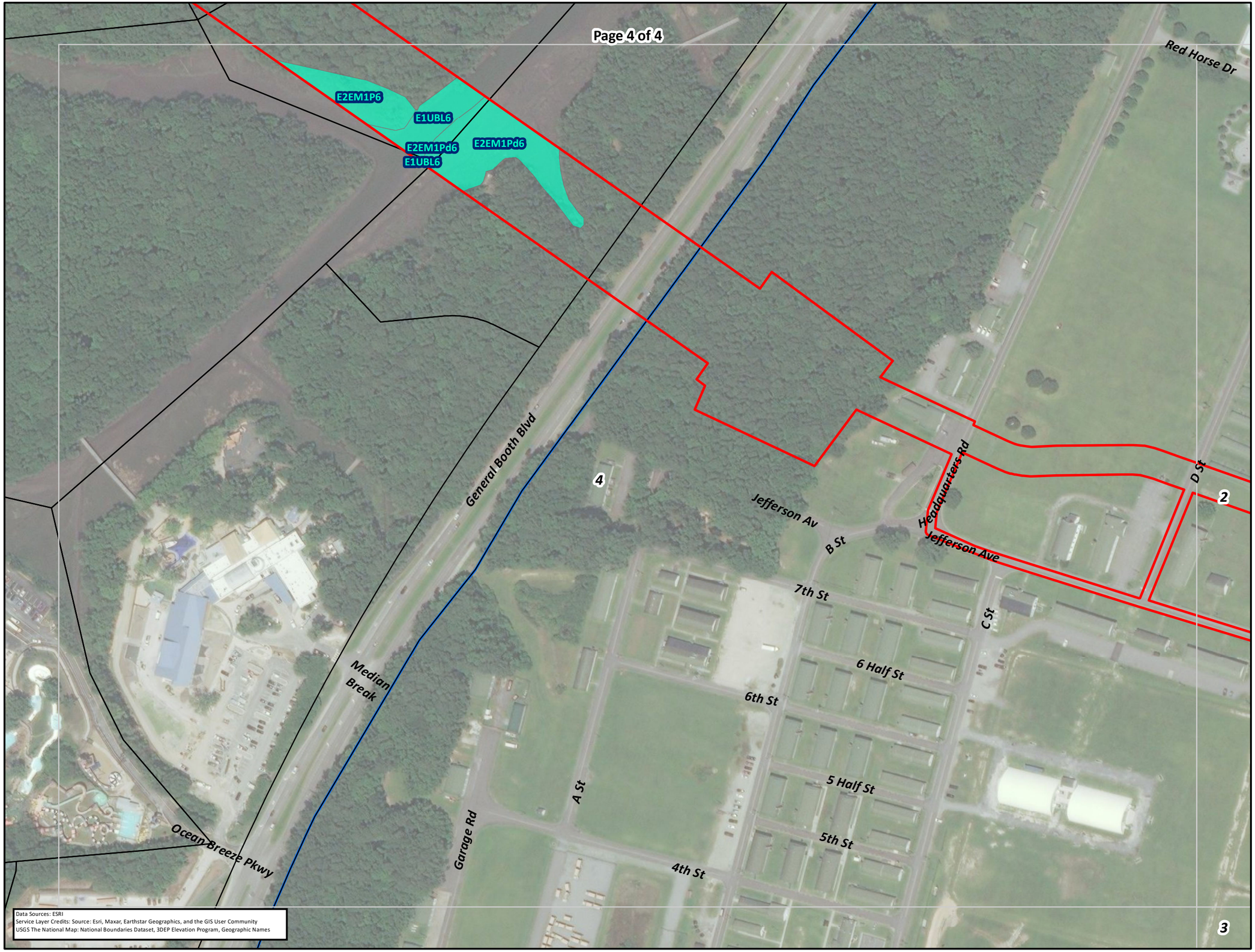
Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: SMR PJD

Dominion Energy®

- Former NAS Oceana South Virginia Beach Annex
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- SMR

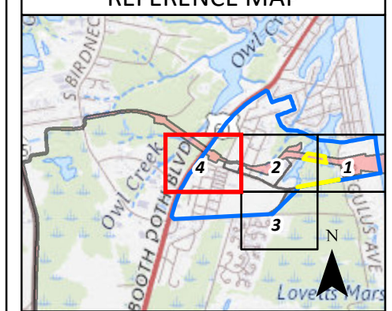
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

APPENDIX D: DATA SHEETS

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 5

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	CHAPANOKE SILT LOAM

Summary of Findings: **UPLAND ABOVE FLAG 'BYI-28'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Quercus phellos	Tree	FACW	20
Acer rubrum	Tree	FAC	15
Carya tomentosa	Tree	UPL	10
Carpinus caroliniana	Sapling	FAC	20
Acer rubrum	Sapling	FAC	10
Athyrium asplenioides	Herbaceous	FAC	5
Lonicera japonica	Herbaceous	FACU	3
Vitis rotundifolia	Herbaceous	FAC	3

Non-Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Sapling	FAC	5

% Dominant species FAC or wetter: 75%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-4	10YR 4/4	100					LOAM
4-8	10YR 5/2	100					LOAM
8-20	2.5Y 6/2	90	10YR 6/8	10	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 31

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND IN A SHALLOW DEPRESSION AT 'KPA' LINE.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	X Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: 16

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Paspalum dilatatum	Herbaceous	FAC	70

Non-Dominant Species	Stratum	IND	%
Eleocharis obtusa	Herbaceous	OBL	10
Packera anonyma	Herbaceous	FACU	6
Diodia virginiana	Herbaceous	FACW	5
Cyperus iria	Herbaceous	FACW	2
Hydrocotyle umbellata	Herbaceous	OBL	2
Ludwigia palustris	Herbaceous	OBL	2

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.7

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-1	2.5Y 4/1	100					CLAY LOAM
1-16	5Y 5/1	80	10YR 5/8	15	C	M	CLAY LOAM
			7.5YR 4/6	5	C	PL	
16-20	10YR 5/1	100					FINE SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 32

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND NEAR 'KPA' LINE.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Paspalum dilatatum	Herbaceous	FAC	70

Non-Dominant Species	Stratum	IND	%
Lespedeza procumbens	Herbaceous	UPL	40
Plantago lanceolata	Herbaceous	FACU	10
Oxalis stricta	Herbaceous	UPL	10
Cynodon dactylon	Herbaceous	FACU	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 3.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	10YR 4/3	100					LOAM
3-15	2.5Y 5/2	85	7.5YR 5/8	15	C	M	CLAY
15-20	2.5Y 6/1	98	2.5Y 5/6	2	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 43

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **WETLAND AT FLAG 'KPD-7'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: O

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Morella cerifera	Shrub	FAC	5
Juncus scirpoides	Herbaceous	FACW	60
Juncus tenuis	Herbaceous	FAC	60

Non-Dominant Species	Stratum	IND	%
Scirpus pendulus	Herbaceous	OBL	30
Packera anonyma	Herbaceous	FACU	20
Xyris ambigua	Herbaceous	OBL	15
Dichanthelium aciculare	Herbaceous	FACU	10
Rhexia virginica	Herbaceous	FACW	5
Dichanthelium scabriusculum	Herbaceous	OBL	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.4

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 4/2	90	10YR 5/3	10	C	M	SANDY LOAM
2-20	5Y 5/2	95	7.5YR 5/8	5	C	M	SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	X Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 44

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	NEWHAN FINE SAND

Summary of Findings: **UPLAND NEAR FLAG 'KPD-11'.**

Hydrophytic Vegetation is Present:		Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	X Geomorphic Position (D2)
		Shallow Aquitard (D3)
		FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: 18

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Diodia teres	Herbaceous	FACU	60
Andropogon virginicus	Herbaceous	FAC	30

Non-Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	10
Verbesina occidentalis	Herbaceous	FACU	5
Linum medium	Herbaceous	FAC	5
Juncus scirpoides	Herbaceous	FACW	5
Helianthus angustifolius	Herbaceous	FACW	3

% Dominant species FAC or wetter: 50%

Prevalence Index: 3.6

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%:
Prevalence Index is ≤ 3.0:
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER NOT MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-14	2.5Y 5/3	95	7.5YR 5/3	5	C	M	FINE SAND
14-18	10YR 6/4	90	10YR 5/2	10	D	M	FINE SAND
18-20	2.5Y 6/3	98	2.5Y 6/8	2	C	M	FINE SAND

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 45

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **WETLAND NEAR FLAG 'KPC-29'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: O

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Morella cerifera	Shrub	FAC	7
Juncus scirpoides	Herbaceous	FACW	60
Juncus tenuis	Herbaceous	FAC	50

Non-Dominant Species	Stratum	IND	%
Mikania scandens	Herbaceous	FACW	30
Dichanthelium scoparium	Herbaceous	FACW	20
Echinochloa muricata	Herbaceous	FACW	15
Solidago sempervirens	Herbaceous	FACW	5
Rhexia virginica	Herbaceous	FACW	5
Erigeron annuus	Herbaceous	FACU	2

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.3

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 3/3	100					LOAMY SAND
2-4	2.5Y 5/2	93	10YR 3/6	5	C	M	SAND
			10YR 6/8	2	C	PL	
4-20	2.5Y 5/2	80	7.5YR 4/6	20	C	M	SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	X Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 46

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **UPLAND NEAR FLAG 'KPC-29',**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONVEX
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	10
Juncus scirpoides	Herbaceous	FACW	10
Juncus tenuis	Herbaceous	FAC	10
Hypericum crux-andreae	Herbaceous	FACW	10
Digitaria ischaemum	Herbaceous	UPL	10

Non-Dominant Species	Stratum	IND	%
Persicaria pensylvanica	Herbaceous	FACW	5
Cyperus iria	Herbaceous	FACW	5
Echinochloa muricata	Herbaceous	FACW	5
Panicum virgatum	Herbaceous	FAC	3
Dichanthelium scoparium	Herbaceous	FACW	3
Rhynchospora inexpansa	Herbaceous	FACW	2

% Dominant species FAC or wetter: 60%

Prevalence Index: 2.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 5/3	100					SANDY CLAY LOAM
2-3	2.5Y 3/3	100					SANDY CLAY LOAM
3-8	5G 5/1	100					CLAY LOAM
8-20	2.5Y 5/6	90	7.5YR 5/6	10	C	M	FINE SANDY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	X Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOILS ARE HIGHLY VARIABLE AND DISTURBED.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 47

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **WETLAND NEAR FLAG 'KPC-44'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: O

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Juncus scirpoides	Herbaceous	FACW	20
Rhynchospora inexpansa	Herbaceous	FACW	20
Andropogon virginicus	Herbaceous	FAC	15

Non-Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	10
Diodia virginiana	Herbaceous	FACW	10
Rhexia virginica	Herbaceous	FACW	2

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.5

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 4/2	98	10YR 3/6	2	C	M	SAND
2-4	10YR 5/3	100					SAND
4-20	2.5Y 5/1	98	2.5Y 6/6	2	C	M	SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	X Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 48

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **UPLAND ABOVE FLAG 'KPC-46'.**

Hydrophytic Vegetation is Present:		Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	70
Andropogon virginicus	Herbaceous	FAC	40

Non-Dominant Species	Stratum	IND	%
Juncus tenuis	Herbaceous	FAC	15
Juncus scirpoides	Herbaceous	FACW	10
Diodia teres	Herbaceous	FACU	10
Schoenoplectus tabernaemontani	Herbaceous	OBL	3

% Dominant species FAC or wetter: 50%

Prevalence Index: 3.4

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: ____
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER NOT MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-5	10YR 3/3	100					LOAMY SAND
5-10	2.5Y 6/4	85	10YR 5/8	15	C	M	FINE SAND
10-17	10YR 6/6	90	7.5YR 6/3	10	C	M	FINE SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

APPENDIX E: PREVIOUS DELINEATION REPORT(S)

Stantec Consulting Services Inc.
5209 Center Street, Williamsburg, Virginia 23188-2680

March 5, 2018 ; Revised June 15, 2018
File: 203400975

Attention: Regulator of the Day
U.S. Army Corps of Engineers
803 Front Street
Norfolk, Virginia 23510
Via Email: CENAO.REG_ROD@usace.army.mil

Dear Regulator of the Day:

Reference: **Request for Preliminary Jurisdictional Determination**
2017 SMR Camp Pendleton Wetland Delineation, Virginia Beach, Virginia
Latitude: 36.816431° Longitude: -75.97849°

Applicant: Mr. Ken Oristaglio
Commonwealth of Virginia Department of Military Affairs
Building 316 Fort Pickett
Blackstone, Virginia 23824-6316

Stantec Consulting Services, Inc. (Stantec) has been retained by the Commonwealth of Virginia Department of Military Affairs (VDMA), to conduct a detailed investigation of waters of the U.S., including wetlands (WOUS), on the above-referenced project. The approximate 332.01-acre study area is located within the Lake Christine, Lake Rudee, and Atlantic Ocean drainage basins in Virginia Beach, Virginia (Figure 1). The site is situated south of Rudee Inlet, north of South Birdneck Road, west of General Booth Boulevard, and can be accessed from General Booth Boulevard (via the Virginia Aquarium and Marine Science Center overflow parking lot) (Figure 2). A copy of the Pre-Application and/or Jurisdictional Waters Determination Request Form is provided in Appendix A.

It should be noted that Stantec previously conducted detailed delineations of WOUS within portions of the SMR Camp Pendleton. Specifically, Stantec delineated an area immediately around and including Lake Christine (Lake Christine Water Quality Study and Dredging Plan). The Corps confirmed the delineation on September 23, 2013 (NAO-2013-1616). Additional study area was added and delineated in association with the Lake Christine delineation and was confirmed on March 12, 2015 under the same Corps project number.

Off-site Evaluation

Prior to conducting fieldwork, Stantec consulted the U.S. Geological Survey (USGS) 7.5-minute Topographical Quadrangle Map for Virginia Beach, Virginia (1986 revision), the National Wetlands Inventory (NWI), administered by the U.S. Fish and Wildlife Service (USFWS), and the SSURGO Soil Survey, administered by the Natural Resources Conservation Service (NRCS). The USGS quad map depicts a partially forested site on nearly level terrain. Lake Christine bisects the central portion of

the project area and the Atlantic Ocean is located immediately to the east. Within the project limits, the NWI map (Figure 3) depicts freshwater emergent wetlands, freshwater forest/shrub wetlands, and freshwater lake associated with Lake Christine. The soil survey (Figure 4) indicates that the site is underlain primarily by Acredale silt loam, Augusta loam, Chapanoke silt loam, Duckston fine sand, Tetotum loam, Tomotley loam, Udorthents, loamy, and Urban land. Of these soil types, Acredale silt loam, Duckston fine sand, and Tomotley loam are classified as hydric by the NRCS in Virginia Beach, Virginia.

On-site Evaluation

Fieldwork was conducted during August and October 2017 using the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain (Version 2.0)*. Wetland flags were placed in the field by Stantec and sequentially numbered to provide an on-site record of the delineation. The data sheets (Appendix B) used in this investigation are attached along with the Delineation Map (Figure 5) showing the GPS-located limits of wetlands and other water features, previously confirmed WOUS limits, as well as data point locations.

Site Description

Jurisdictional features identified by Stantec within the project limits may be classified as palustrine forested, scrub shrub, and emergent wetlands; tidal emergent wetlands; perennial and intermittent stream channels; jurisdictional ditches, as well as open water associated with Lake Christine. Wetland vegetation is typified by red maple (*Acer rubrum*), groundsel tree (*Baccharis halimifolia*), American hornbeam (*Carpinus caroliniana)*, coastal sweetpepperbush (*Clethra alnifolia*), wax myrtle (*Morella cerifiera)*, willow oak (*Quercus phellos*), highbush blueberry (*Vaccinium corymbosum*), southern lady fern (*Athyrium asplenioides*), smallspike false nettle (*Boehmeria cylindrica*), cypress panicgrass (*Dichanthelium dichotomum*), common rush (*Juncus effusus*), sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda regalis*), dallisgrass (*Paspalum dilatatum*), and netted chainfern (*Woodwardia areolata*). The transition from wetland to upland is generally identified by a shift in the vegetative community and a loss of surficial indicators of hydrology. Table 1 shows the dimensions of the identified jurisdictional resources within the 2017 SMR Camp Pendleton Wetland Delineation study area and do not include the previously confirmed WOUS limits.

Table 1. Wetlands and WOUS Calculations

E2EM (Acres)	**PFO** (Acres)	**PSS** (Acres)	**PEM** (Acres)	**Upper Perennnial Stream Channels (R3)** Acres (LF)	**Intermittent Stream Channels (R4)** Acres (LF)	**Jurisdictional Ditches (R4)** Acres (LF)
0.40	13.22	0.29	2.05	0.01 (244)	0.02 (272)	0.08 (1,757)

Reference: 2017 SMR Camp Pendleton Wetland Delineation

Table 2 shows the dimensions of wetlands and other waters of the U.S. from the 2017 SMR Camp Pendleton Wetland Delineation combined with the previously confirmed limits of WOUS associated with the Lake Christine Water Quality Study and Dredging Plan.

Table 2. Combined Wetlands and WOUS Calculations

Wetlands (Acres)	**Upper Perennial Stream Channels (R3)** Acres (LF)	**Intermittent Stream Channels (R4)** Acres (LF)	**Jurisdictional Ditches (R4)** Acres (LF)	**Open Waters** (Acres)
20.46	0.01 (244)	0.02 (272)	0.23 (2,729)	18.42

On behalf of our client, Stantec respectfully requests that the Corps confirm our delineation of the 2017 SMR Camp Pendleton Wetland Delineation and re-confirm the WOUS included in the Lake Christine Water Quality Study and Dredging Plan. We would appreciate the opportunity to meet with you on site to present our fieldwork. Please call to set up a meeting date or to discuss any questions regarding our investigation.

Thank you for your cooperation in this matter.

Regards,

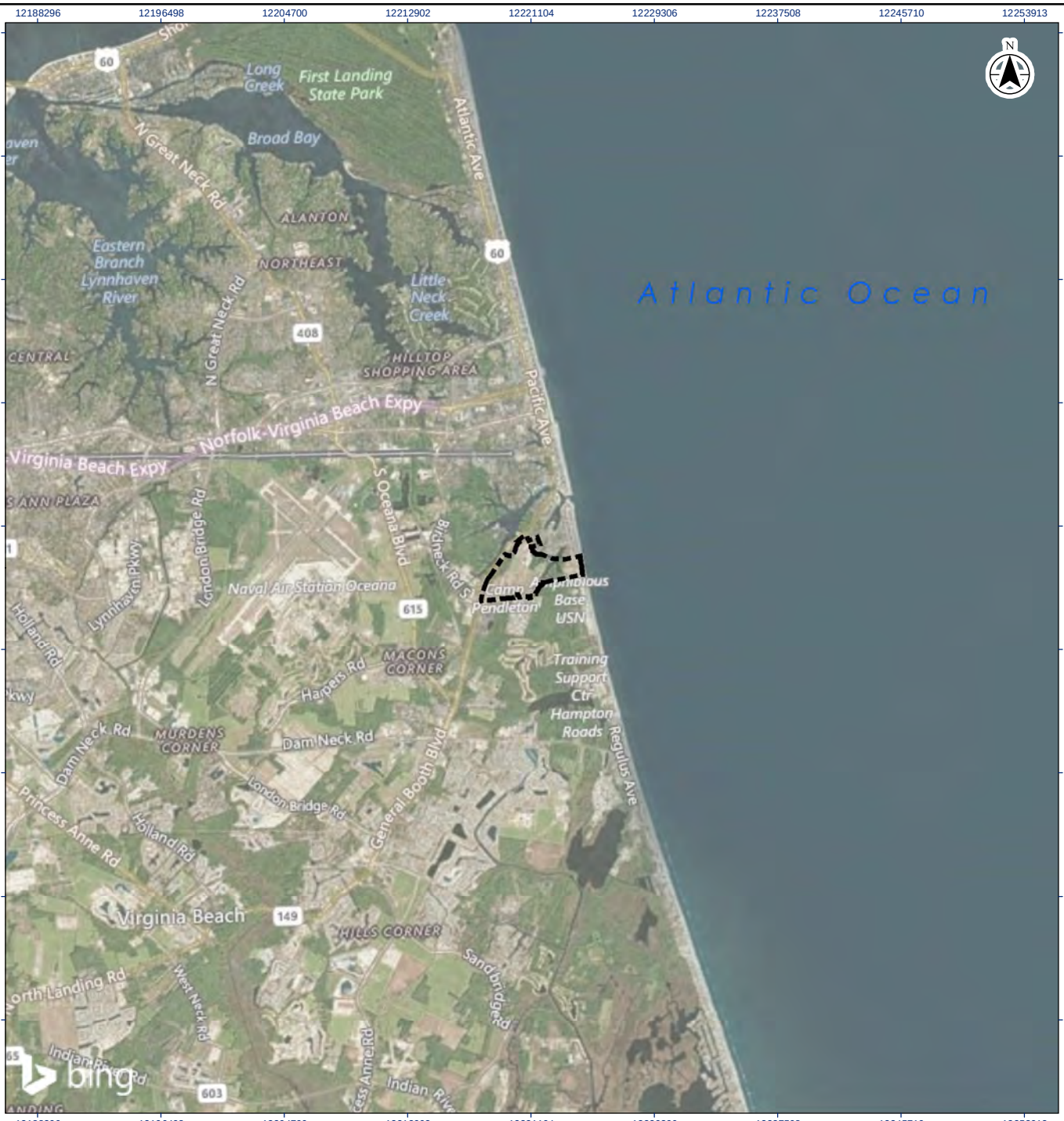
Stantec Consulting Services

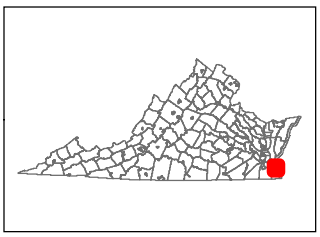
Kenrick Presgraves, PWD
Senior Ecologist
Phone: (757) 220 -6869
Fax: (757) 229-4507
kenny.presgraves@stantec.com

Enclosures: Figures 1, 2, 3, 4, and 5
Appendices A and B

cc. Mr. Ken Oristaglio – Virginia Department of Military Affairs

sk u:\203400975\03_data\field\ecology\ ltr_00975_pjd_20180305.docx





Legend

Project Limits

0 4,900 9,800 Feet

1:120,000 (at original document size of 8.5x11)

Stantec

Project Location 203400975

City of Virginia Beach, VA

Prepared by ECL on 2017-07-24
Technical Review by TPS on 2018-01-05
Independent Review by KHP on 2018-01-05

Client/Project

Commonwealth of Virginia
2017 SMR Camp Pendleton Wetland Delineation

Map Date: 2018-03-05

Figure No.

1

Title

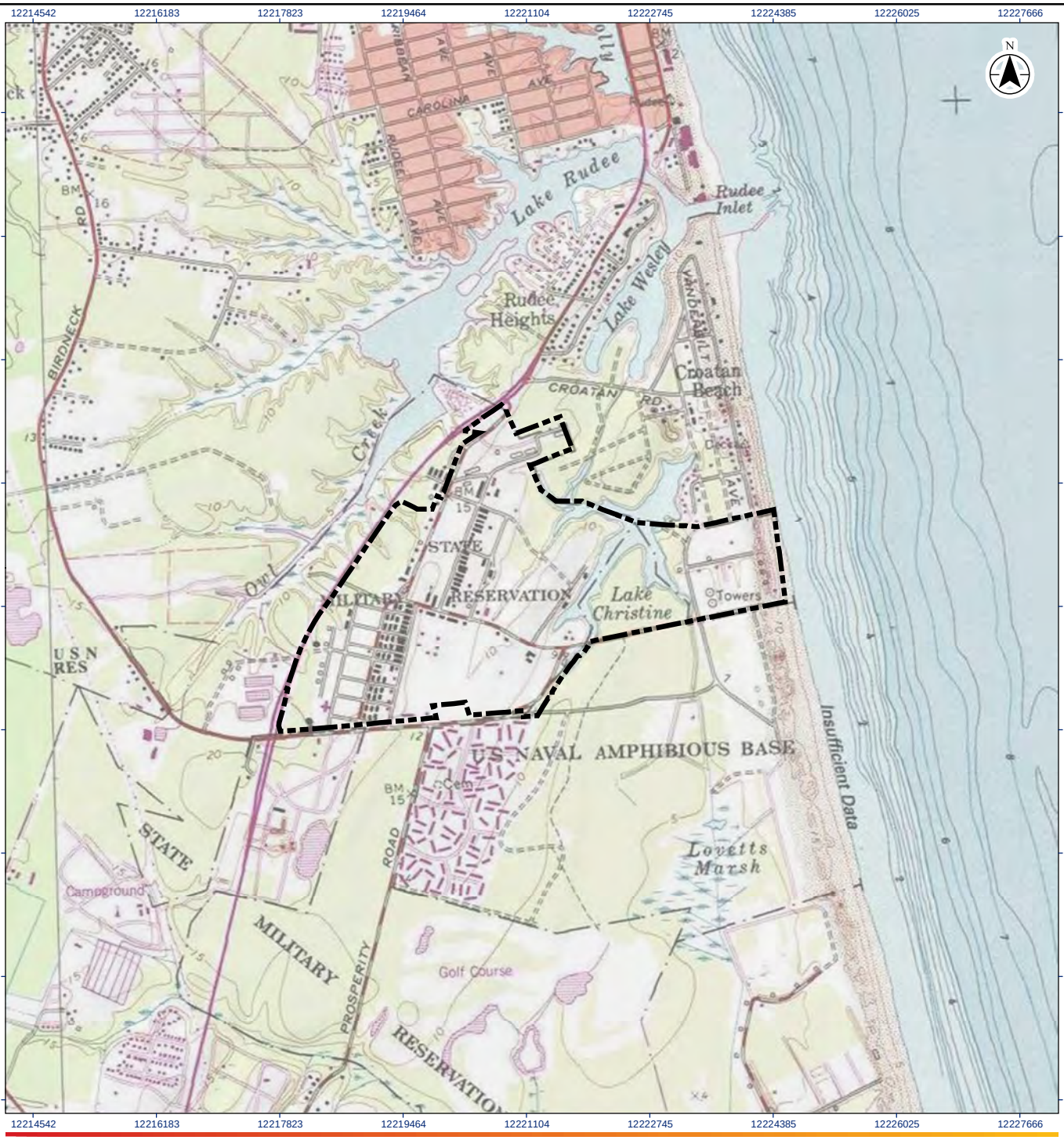
Project Vicinity Map

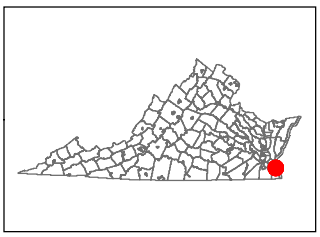
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Orthoimagery © Bing Maps
3. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

U:\203400975\03_data\gis_cad\gis\00975_e_vic.mxd Revised: 2018-03-05 By: eljiko

U:\203400975\03_data\gis_cad\gis\000975_e_loc.mxd Revised: 2018-03-05 By: ejilko





Legend

Project Limits

Latitude: 36.816431°

Longitude: -75.97849°

0 1,000 2,000 Feet

1:24,000 (at original document size of 8.5x11)

Stantec

Project Location: City of Virginia Beach, VA

203400975

Prepared by ECL on 2017-07-24

Technical Review by TPS on 2018-01-05

Independent Review by KHP on 2018-01-05

Client/Project

Commonwealth of Virginia

2017 SMR Camp Pendleton Wetland Delineation

Map Date: 2018-03-05

Figure No.

2

Title

Project Location Map

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Topographic map © USGS 7.5 Minute Series Topographic Map

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Figure No.
3

Title
National Wetlands Inventory Map

Map Date: 2018-03-05

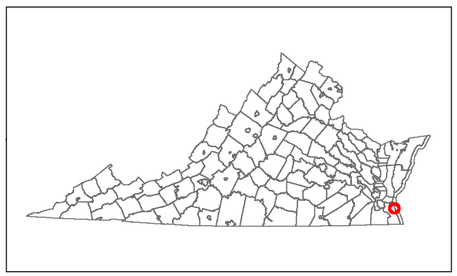
Client/Project
Commonwealth of Virginia
2017 SMR Camp Pendleton Wetland Delineation

Project Location
City of Virginia Beach, Virginia

203400975
Prepared by ECL on 2017-07-24
Technical Review by TPS on 2018-01-05
Independent Review by KHP on 2018-01-05

0 1,000 2,000 Feet
1:12,000 (At original document size of 11x17)

Legend
- Project Limits
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502
2. Feet
   Wetlands and waters data provided by USFWS National Wetlands
3. Inventory (NWI)
4. Orthoimagery © Bing Maps
   Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Stantec

U:\203400975\03_data\gis_cad\gis\00975_e_nwi.mxd Revised: 2018-03-05 By: dgiko

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Map Unit Symbol	Description
1	Acredale silt loam
13	Dragston fine sandy loam
15	Duckston fine sand
19	Munden fine sandy loam
21	Nawney silt loam
22E	Newhan fine sand, 2 to 30 percent slopes
3	Augusta loam
33E	Rumford fine sandy loam, 6 to 35 percent slopes
36	Tetotum loam
38	Tomotley loam
40	Udorthents, loamy
41	Udorthents-Urban land complex
42	Urban land
43	Yeopim silt loam
6	Beaches
7	Bojac fine sandy loam
8	Chapanoke silt loam
W	Water

12214543 12217823 12221104 12224385

3471122 3467841 3464560

Figure No.
4

Title
Soils Map

Map Date: 2018-03-05

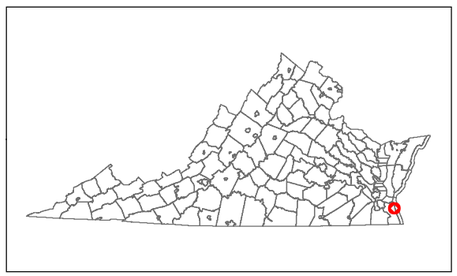
Client/Project
Commonwealth of Virginia
2017 SMR Camp Pendleton Wetland Delineation

Project Location
City of Virginia Beach, Virginia

203400975
Prepared by ECL on 2017-07-24
Technical Review by TPS on 2018-01-05
Independent Review by KHP on 2018-01-05

0 1,000 2,000 Feet
1:12,000 (At original document size of 11x17)

Legend
Project Limits
Soils



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502
2. Feet
3. Soils data provided by USDA NRCS SSURGO Soil Survey
4. Orthoimagery © Bing Maps
Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Stantec

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

U:\203400975\03_data\gis_cad\gis\00975_e_soils.mxd Revised: 2018-03-06 By: efiko

Site Data - SMR Camp Pendleton

Study Area	304.04 Acres ±
Estuarine Emergent Intertidal Wetlands (E2EM)	0.40 Acres ±
Palustrine Forested Wetlands (PFO)	15.46 Acres ±
Palustrine Scrub-Shrub Wetlands (PSS)	0.26 Acres ±
Palustrine Emergent Wetlands (PEM)	1.73 Acres ±
Upper Perennial Stream Channels (R3)	0.01 Acres ± (244 L.F. ±)
Intermittent Stream Channels (R4)	0.02 Acres ± (272 L.F. ±)
Jurisdictional Ditches (R4)	0.08 Acres ± (1,757 L.F. ±)

Previously Delineated Site Data - Lake Christine

Study Area	27.97 Acres ±
Wetlands	4.50 Acres ±
Open Waters	18.42 Acres ±
Jurisdictional Ditches	0.15 Acres ± (972 L.F. ±)

Site Data - Combined

Study Area	332.01 Acres ±
Wetlands	22.35 Acres ±
Upper Perennial Stream Channels (R3)	0.01 Acres ± (244 L.F. ±)
Intermittent Stream Channels (R4)	0.02 Acres ± (272 L.F. ±)
Jurisdictional Ditches	0.23 Acres ± (2,729 L.F. ±)
Open Waters	18.42 Acres ±

Figure No.

5

Title

Delineation Map

Map Date: 2018-03-05
Revised Date: 2018-06-15

Client/Project

Commonwealth of Virginia
2017 SMR Camp Pendleton Wetland Delineation

Project Location

City of Virginia Beach, VA

203400975
Prepared by MGS on 2017-12-11
Technical Review by TPS on 2018-01-05
Independent Review by KHP on 2018-01-05

0 500 1,000 Feet

1:3,000 (At original document size of 24 x 36)

Legend

- Previously Delineated Study Area
- 2-Foot Contour
- Approximate Stormwater Facility
- Approximate Estuarine Emergent Intertidal Wetland Limits (E2EM)
- Approximate Jurisdictional Ditch Limits
- Approximate Palustrine Emergent Wetland Limits (PEM)
- Approximate Palustrine Forested Wetland Limits (PFO)
- Approximate Palustrine Scrub-Shrub Wetland Limits (PSS)
- Approximate Upper Perennial Stream Channel Limits (R3)
- Approximate Intermittent Stream Channel Limits (R4)
- Previously Delineated Jurisdictional Ditch
- Previously Delineated Open Water
- Previously Delineated Wetland Limits



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. The limits of waters of the U.S., including wetlands within the previously delineated study area, have been confirmed by the U.S. Army Corps of Engineers, Confirmation #NAO-2013-1616.
3. The limits of waters of the U.S., including wetlands, shown on this map have been field located by means of sub-meter capable GPS technology and are for planning purposes only.
4. Orthoimagery © Bing Maps
5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Stantec

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

I:\2034\00975\03_data\gis_cad\gis\00975_e_delin.mxd Revised: 2018-06-15 By: lberryman

Appendix A

Pre-Application and/or Jurisdictional Waters Request Form

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Office
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: **March 2018**

2. Project Name: **2017 SMR Camp Pendleton Wetland Delineation**

3. City or County where property located: **Virginia Beach, Virginia**

4. Address of property and directions (attach a map of the property location and a copy of the property plat): **The site is situated south of Rudee Inlet, north of South Birdneck Road, west of General Booth Boulevard, and can be accessed from General Booth Boulevard (via the Virginia Aquarium and Marine Science Center overflow parking lot). Location and vicinity maps are included in the submittal page.**

5. Coordinates of property (if known): **36.816431°, -75.97849°**

6. Size of property in acres: **332.01**

7. Tax Parcel Number / GPIN (if available):

8. Name of Nearest Waterway: **Lake Christine**

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request: **Environmental inventory.**

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☒ YES ☐ NO ☐ UNKNOWN,

If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

Mr. Scott Kupiec (Williamsburg Environmental Group)
Corps Permit Number: NAO-2013-1616 (Lake Christine)
USACE-Norfolk District Staff: Ms. Nicole L. Woodward (2015), Ms. Katy R. Damico (2013)

Property Owner Contact Information:

Property Owner Name: **LTC Timothy Pillion, Garrison Commander Camp Pendleton State Military Reserve**
Mailing Address: **203 Red Horse Drive**
City: State: Zip: **Virginia Beach, Virginia 23451**
Daytime Telephone: **(757) 493-3122**
E-mail Address: **timothy.d.pillion.mil@mail.mil**

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: **Mr. Ken Oristaglio**
Commonwealth of Virginia Department of Military Affairs
Mailing Address: **Building 316 Fort Pickett**
City: State: Zip: **Blackstone, Virginia 23824-6316**
Daytime Telephone: **(434) 298-6416**
E-mail Address: **kenneth.l.oristaglio@us.army.mil**

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

Property Owner's Signature

1 MAR 18
Date

Appendix B

Wetland Determination Data Forms

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 1

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND SOUTHEAST OF GENERAL BOOTH HIGHWAY.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONVEX
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	25
Quercus alba	Tree	FACU	20
Acer rubrum	Tree	FAC	15
Quercus phellos	Tree	FACW	15
Acer rubrum	Sapling	FAC	15
Liquidambar styraciflua	Sapling	FAC	15
Liquidambar styraciflua	Shrub	FAC	10
Smilax rotundifolia	Herbaceous	FAC	10
Gelsemium sempervirens	Herbaceous	FAC	5

Non-Dominant Species	Stratum	IND	%

% Dominant species FAC or wetter: 89%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	10YR 4/2	100					LOAM
3-20	5Y 7/1	85	10YR 7/8	15	C	M	LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 2

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	YEOPIM SILT LOAM

Summary of Findings: **WETLAND SWALE BELOW FLAG 'BYD-2'**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	30
Liquidambar styraciflua	Tree	FAC	15
Acer rubrum	Sapling	FAC	10
Carpinus caroliniana	Shrub	FAC	5
Juncus effusus	Herbaceous	OBL	15
Toxicodendron radicans	Herbaceous	FAC	10
Smilax rotundifolia	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%
Arisaema triphyllum	Herbaceous	FACW	5
Smilax rotundifolia	Herbaceous	FAC	5
Microstegium vimineum	Herbaceous	FAC	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.7

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

UNIDENTIFIED DOMINANT SPECIES OF CAREX (10%) PRESENT.

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-4	2.5Y 6/3	100					SANDY LOAM
4-20	5Y 8/1	78	10YR 6/8	20	C	M	LOAM
			10YR 5/6	2	C	M	

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 3

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	YEOPIM SILT LOAM

Summary of Findings: **UPLAND BELOW FLAG 'BYD-10'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Quercus falcata	Tree	FACU	35
Carya tomentosa	Tree	UPL	20
Carpinus caroliniana	Sapling	FAC	15
Liquidambar styraciflua	Shrub	FAC	10
Lonicera japonica	Herbaceous	FACU	5
Smilax rotundifolia	Herbaceous	FAC	5
Smilax rotundifolia	Vine	FAC	5

Non-Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	5

% Dominant species FAC or wetter: 57%

Prevalence Index: 3.8

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

UNIDENTIFIED DOMINANT SPECIES OF FESCUE (10%) PRESENT.

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-5	10YR 3/3	100					LOAM
5-20	2.5Y 7/1	95	2.5Y 5/6	5	C	M	LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 4

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	RUMFORD FINE SANDY

Summary of Findings: **WETLAND BELOW FLAG 'BYF-6'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLOODPLAIN
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	X Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: 4

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	25
Liquidambar styraciflua	Tree	FAC	15
Carpinus caroliniana	Sapling	FAC	10
Ulmus americana	Sapling	FAC	5
Baccharis halimifolia	Shrub	FAC	20
Pinus taeda	Shrub	FAC	10
Microstegium vimineum	Herbaceous	FAC	25
Juncus effusus	Herbaceous	OBL	25
Toxicodendron radicans	Vine	FAC	3

Non-Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Shrub	FAC	5
Dichanthelium scabriusculum	Herbaceous	OBL	10
Onoclea sensibilis	Herbaceous	FACW	5
Symphyotrichum pilosum	Herbaceous	FAC	5
Smilax rotundifolia	Herbaceous	FAC	5
Dichanthelium dichotomum	Herbaceous	FAC	3

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.6

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-7	7.5YR 4/1	98	7.5YR 6/2	2	C	M	CLAY LOAM
7-20	2.5Y 6/1	78	10YR 5/8	20	C	M	CLAY LOAM
			10YR 3/6	2	C	PL	

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 5

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	CHAPANOKE SILT LOAM

Summary of Findings: **UPLAND ABOVE FLAG 'BYI-28'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Quercus phellos	Tree	FACW	20
Acer rubrum	Tree	FAC	15
Carya tomentosa	Tree	UPL	10
Carpinus caroliniana	Sapling	FAC	20
Acer rubrum	Sapling	FAC	10
Athyrium asplenioides	Herbaceous	FAC	5
Lonicera japonica	Herbaceous	FACU	3
Vitis rotundifolia	Herbaceous	FAC	3

Non-Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Sapling	FAC	5

% Dominant species FAC or wetter: 75%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-4	10YR 4/4	100					LOAM
4-8	10YR 5/2	100					LOAM
8-20	2.5Y 6/2	90	10YR 6/8	10	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 6

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	CHAPANOKE SILT LOAM

Summary of Findings: **WETLAND SWALE BELOW FLAG 'BYI-20'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	2-4

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	X Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: 8

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	45
Liquidambar styraciflua	Tree	FAC	25
Carpinus caroliniana	Sapling	FAC	30
Ulmus americana	Sapling	FAC	15
Carpinus caroliniana	Shrub	FAC	20
Athyrium asplenioides	Herbaceous	FAC	5
Microstegium vimineum	Herbaceous	FAC	3

Non-Dominant Species	Stratum	IND	%
Acer rubrum	Sapling	FAC	10

% Dominant species FAC or wetter: 100%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-1	10YR 3/2	100					CLAY LOAM
1-16	5Y 6/1	70	7.5YR 6/8	25	C	M	CLAY LOAM
			7.5YR 5/8	5	C	M	

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 7

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	RUMFORD FINE SANDY LOAM

Summary of Findings: **WETLAND BELOW FLAG 'BAA-123'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	2-4

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	X Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	X Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	45
Liquidambar styraciflua	Sapling	FAC	20
Acer rubrum	Sapling	FAC	15
Morella cerifera	Shrub	FAC	15
Pinus taeda	Shrub	FAC	5
Liquidambar styraciflua	Shrub	FAC	5
Microstegium vimineum	Herbaceous	FAC	4
Smilax rotundifolia	Herbaceous	FAC	5
Juncus effusus	Herbaceous	OBL	3
Smilax rotundifolia	Herbaceous	FAC	3

Non-Dominant Species	Stratum	IND	%

% Dominant species FAC or wetter: 100%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	10YR 3/2	100					FINE SANDY LOAM
3-8	10YR 4/2	90	10YR 5/8	10	C	M	FINE SANDY LOAM
8-20	10YR 6/2	80	10YR 5/8	20	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 8

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	RUMFORD FINE SANDY LOAM

Summary of Findings: **UPLAND SWALE NEAR FLAG 'BAA-159'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	2-4

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	25
Liquidambar styraciflua	Tree	FAC	15
Quercus rubra	Sapling	FACU	35
Liquidambar styraciflua	Sapling	FAC	20
Liquidambar styraciflua	Shrub	FAC	20
Vitis rotundifolia	Herbaceous	FAC	10
Lonicera japonica	Herbaceous	FACU	5

Non-Dominant Species	Stratum	IND	%
Smilax rotundifolia	Herbaceous	FAC	3

% Dominant species FAC or wetter: 71%

Prevalence Index: 3.3

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-3	2.5Y 3/3	100					FINE SANDY LOAM
3-20	2.5Y 5/3	90	2.5Y 6/6	10	C	M	CLAY LOAM

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 9

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	RUMFORD FINE SANDY LOAM

Summary of Findings: **UPLAND DRAINAGE EAST OF 'BAA' LINE.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	20
Pinus taeda	Tree	FAC	15
Liriodendron tulipifera	Tree	FACU	15
Acer rubrum	Sapling	FAC	15
Quercus rubra	Sapling	FACU	15
Liquidambar styraciflua	Sapling	FAC	10
Liquidambar styraciflua	Shrub	FAC	10
Carpinus caroliniana	Shrub	FAC	10
Ilex opaca	Shrub	FAC	5
Vitis rotundifolia	Herbaceous	FAC	5
Microstegium vimineum	Herbaceous	FAC	5
Toxicodendron radicans	Herbaceous	FAC	3
Smilax rotundifolia	Vine	FAC	3

Non-Dominant Species	Stratum	IND	%

% Dominant species FAC or wetter: 85%

Prevalence Index: 3.2

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-20	2.5Y 5/3	95	10YR 4/6	5	C	M	FINE SANDY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 10

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	YEOPIM SILT LOAM

Summary of Findings: **UPLAND SWALE SOUTHEAST OF 'BAA' LINE.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	25
Acer rubrum	Tree	FAC	10
Acer rubrum	Sapling	FAC	20
Carpinus caroliniana	Sapling	FAC	5
Acer rubrum	Shrub	FAC	20
Quercus rubra	Shrub	FACU	15
Carpinus caroliniana	Shrub	FAC	10
Smilax rotundifolia	Herbaceous	FAC	15
Lonicera japonica	Herbaceous	FACU	5
Smilax rotundifolia	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%
Campsis radicans	Herbaceous	FAC	3

% Dominant species FAC or wetter: 80%

Prevalence Index: 3.1

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-20	2.5Y 5/3	85	10YR 5/4	15	C	M	SANDY CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 11

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND NORTHEAST OF FLAG 'BAK-6'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	X Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	25
Quercus phellos	Tree	FACW	15
Nyssa sylvatica	Sapling	FAC	15
Liquidambar styraciflua	Sapling	FAC	5
Acer rubrum	Sapling	FAC	5
Vaccinium corymbosum	Shrub	FACW	10
Liquidambar styraciflua	Shrub	FAC	5
Clethra alnifolia	Shrub	FACW	5
Microstegium vimineum	Herbaceous	FAC	40
Smilax rotundifolia	Vine	FAC	70

Non-Dominant Species	Stratum	IND	%
Solidago rugosa	Herbaceous	FAC	10
Rubus argutus	Herbaceous	FAC	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-5	10YR 4/1	100					FINE SANDY LOAM
5-20	10YR 6/1	80	10YR 5/6	15	C	M	FINE SANDY LOAM
			10YR 5/8	5	C	PL	

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 12

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND EAST OF FLAG 'BAK-8'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	30
Quercus alba	Tree	FACU	20
Liquidambar styraciflua	Sapling	FAC	15
Acer rubrum	Sapling	FAC	10
Clethra alnifolia	Shrub	FACW	25
Vaccinium corymbosum	Shrub	FACW	15
Pteridium aquilinum	Herbaceous	FACU	15
Microstegium vimineum	Herbaceous	FAC	5
Smilax rotundifolia	Herbaceous	FAC	5
Lonicera japonica	Vine	FACU	10
Smilax rotundifolia	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	10
Pinus taeda	Shrub	FAC	5

% Dominant species FAC or wetter: 73%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	10YR 3/2	100					LOAM
3-20	10YR 6/1	90	10YR 5/8	10	C	M	CLAY LOAM

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 13

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND NORTH OF FLAG 'BAI-5'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	15
Quercus phellos	Tree	FACW	15
Liquidambar styraciflua	Sapling	FAC	10
Liquidambar styraciflua	Shrub	FAC	20
Acer rubrum	Shrub	FAC	10
Microstegium vimineum	Herbaceous	FAC	30
Boehmeria cylindrica	Herbaceous	FACW	20

Non-Dominant Species	Stratum	IND	%
Toxicodendron radicans	Herbaceous	FAC	15
Smilax rotundifolia	Herbaceous	FAC	10
Campsis radicans	Herbaceous	FAC	10
Juncus effusus	Herbaceous	OBL	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.7

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-1	10YR 2/1	100					LOAM
1-7	2.5Y 5/1	95	7.5YR 6/6	3	C	M	CLAY LOAM
			7.5YR 5/8	2	C	PL	
7-20	2.5Y 6/1	93	10YR 6/6	7	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 14

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND EAST OF FLAG 'BAS-50'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	15
Prunus serotina	Sapling	FACU	20
Acer rubrum	Sapling	FAC	5
Prunus serotina	Shrub	FACU	5
Acer rubrum	Shrub	FAC	5
Quercus rubra	Shrub	FACU	5
Liquidambar styraciflua	Shrub	FAC	5
Smilax rotundifolia	Herbaceous	FAC	15
Vitis rotundifolia	Herbaceous	FAC	10
Smilax glauca	Herbaceous	FAC	10

Non-Dominant Species	Stratum	IND	%
Gelsemium sempervirens	Herbaceous	FAC	5

% Dominant species FAC or wetter: 70%

Prevalence Index: 3.3

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	7.5YR 3/1	100					FINE SANDY LOAM
3-17	2.5Y 5/2	97	7.5YR 5/6	3	C	M	FINE SANDY CLAY LOAM
17-20	2.5Y 5/1	96	2.5YR 4/8	2	C	PL	FINE SANDY CLAY LOAM
			2.5YR 4/6	2	C	M	

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 15

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	UDORTHENTS-URBAN LAND COMPLEX

Summary of Findings: **WETLAND WEST OF FLAG 'BAJ-3'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Sapling	FAC	5
Liquidambar styraciflua	Shrub	FAC	5
Phragmites australis	Herbaceous	FACW	40
Microstegium vimineum	Herbaceous	FAC	30

Non-Dominant Species	Stratum	IND	%
Rubus argutus	Herbaceous	FAC	10
Juncus effusus	Herbaceous	OBL	5
Solidago altissima	Herbaceous	FACU	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.6

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-6	5Y 4/1	92	10YR 5/6	5	C	M	FINE SANDY CLAY LOAM
			10YR 6/6	3	C	M	
6-12	2.5Y 6/2	90	10YR 5/6	10	C	M	FINE SANDY CLAY LOAM
12-20	10YR 3/1	83	2.5Y 6/1	15	INCLUSIONS	M	CLAY LOAM
			7.5YR 4/8	2	C	PL	

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 16

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND WEST OF FLAG 'BAH-32'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	X Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	X Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	X Geomorphic Position (D2)
		Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Quercus alba	Tree	FACU	30
Quercus laurifolia	Tree	FACW	15
Nyssa sylvatica	Sapling	FAC	10
Acer rubrum	Sapling	FAC	10
Liquidambar styraciflua	Sapling	FAC	5
Liquidambar styraciflua	Shrub	FAC	10
Clethra alnifolia	Shrub	FACW	5
Solidago patula	Herbaceous	OBL	5
Microstegium vimineum	Herbaceous	FAC	3
Carex lurida	Herbaceous	OBL	2
Smilax rotundifolia	Vine	FAC	15

Non-Dominant Species	Stratum	IND	%

% Dominant species FAC or wetter: 91%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-2	10YR 2/1	100					LOAM
2-10	2.5Y 6/1	100					CLAY LOAM
10-20	2.5Y 6/1	85	10YR 5/6	15	C	M	CLAY LOAM

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	X Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 17

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND WEST OF FLAG 'BAE-10'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	35
Liquidambar styraciflua	Tree	FAC	30
Acer rubrum	Sapling	FAC	20
Nyssa sylvatica	Sapling	FAC	15
Pteridium aquilinum	Herbaceous	FACU	10
Smilax rotundifolia	Vine	FAC	15

Non-Dominant Species	Stratum	IND	%
Nyssa sylvatica	Tree	FAC	15

% Dominant species FAC or wetter: 83%

Prevalence Index: 3.1

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-20	10YR 6/3	100					FINE SANDY LOAM

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 18

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND SOUTH OF FLAG 'BAE-13'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	X Geomorphic Position (D2)
		Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	25
Liquidambar styraciflua	Sapling	FAC	20
Acer rubrum	Shrub	FAC	15
Osmunda spectabilis	Herbaceous	OBL	5
Smilax rotundifolia	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER MET.**

UNIDENTIFIED DOMINANT SPECIES OF CAREX (15%) PRESENT.

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-5	10YR 4/1	100					FINE SANDY LOAM
5-20	10YR 6/2	90	10YR 5/8	10	C	M	FINE SANDY LOAM

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	X Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 19

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND BELOW FLAG 'KPN-40'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	X Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	15
Pinus taeda	Tree	FAC	10
Acer rubrum	Tree	FAC	10
Ulmus americana	Sapling	FAC	10
Acer rubrum	Sapling	FAC	10
Osmunda spectabilis	Herbaceous	OBL	15
Athyrium asplenioides	Herbaceous	FAC	10

Non-Dominant Species	Stratum	IND	%
Ulmus americana	Tree	FAC	5
Smilax rotundifolia	Herbaceous	FAC	5
Microstegium vimineum	Herbaceous	FAC	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.7

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-1	10YR 3/2	100					LOAM
1-20	2.5Y 7/1	75	2.5Y 6/8	25	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region Sampling Point Number: 20

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND ABOVE FLAG 'KPN-35'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Quercus rubra	Tree	FACU	50
Quercus rubra	Sapling	FACU	10
Acer rubrum	Sapling	FAC	5
Baccharis halimifolia	Shrub	FAC	15
Liquidambar styraciflua	Shrub	FAC	5
Vitis rotundifolia	Herbaceous	FAC	20
Vitis rotundifolia	Vine	FAC	10
Smilax rotundifolia	Vine	FAC	5

Non-Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	10
Gelsemium sempervirens	Herbaceous	FAC	5
Lonicera japonica	Herbaceous	FACU	5
Toxicodendron radicans	Herbaceous	FAC	3

% Dominant species FAC or wetter: 75%
Prevalence Index: 3.5
NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST
Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-3	10YR 3/3	100					LOAM
3-20	10YR 6/2	95	2.5Y 6/6	5	C	M	CLAY LOAM

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 21

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND NEAR FLAG 'KPM-9'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: 10

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	20
Acer rubrum	Tree	FAC	15
Carya tomentosa	Sapling	UPL	15
Acer rubrum	Sapling	FAC	10
Lindera benzoin	Shrub	FACW	10
Vitis rotundifolia	Herbaceous	FAC	10
Lonicera japonica	Herbaceous	FACU	5
Smilax rotundifolia	Herbaceous	FAC	5
Toxicodendron radicans	Vine	FAC	3

Non-Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	5
Cornus florida	Sapling	FACU	5

% Dominant species FAC or wetter: 78%

Prevalence Index: 3.3

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-1	10YR 3/2	100					LOAM
1-3	10YR 5/2	90	10YR 5/6	10	C	M	LOAM
3-20	2.5Y 6/2	90	10YR 5/6	10	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 22

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND BELOW FLAG 'KPM-9'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	X Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	X Geomorphic Position (D2)
		Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	30
Acer rubrum	Tree	FAC	15
Acer rubrum	Sapling	FAC	10
Liquidambar styraciflua	Sapling	FAC	10
Elaeagnus umbellata	Shrub	UPL	5
Vaccinium corymbosum	Shrub	FACW	5
Onoclea sensibilis	Herbaceous	FACW	65
Smilax rotundifolia	Vine	FAC	5

Non-Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	10
Juncus effusus	Herbaceous	OBL	10
Smilax rotundifolia	Herbaceous	FAC	5
Rubus argutus	Herbaceous	FAC	3

% Dominant species FAC or wetter: 88%

Prevalence Index: 2.5

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-5	10YR 4/2	100					LOAM
5-8	10YR 5/2	100					LOAM
8-20	10YR 6/2	95	10YR 6/6	5	C	M	CLAY LOAM

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	X Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 23

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	CHAPANOKE SILT LOAM

Summary of Findings: **WETLAND BELOW FLAG 'KPH-6'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	25
Acer rubrum	Tree	FAC	20
Acer rubrum	Sapling	FAC	15
Morella cerifera	Shrub	FAC	45
Gelsemium sempervirens	Herbaceous	FAC	5
Carex albolutescens	Herbaceous	FACW	5
Vitis rotundifolia	Herbaceous	FAC	5

Non-Dominant Species	Stratum	IND	%
Ulmus americana	Tree	FAC	5
Pinus taeda	Shrub	FAC	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

UNIDENTIFIED DOMINANT SPECIES OF CAREX (5%) PRESENT.

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-6	10YR 5/2	100					CLAY LOAM
6-20	5Y 6/1	85	10YR 6/8	15	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 24

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	CHAPANOKE SILT LOAM

Summary of Findings: **UPLAND ABOVE FLAG 'KPH-6'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONVEX
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	50
Liquidambar styraciflua	Tree	FAC	15
Acer rubrum	Sapling	FAC	15
Liquidambar styraciflua	Sapling	FAC	15
Morella cerifera	Shrub	FAC	15
Vitis rotundifolia	Herbaceous	FAC	5
Lonicera japonica	Herbaceous	FACU	5
Smilax bona-nox	Herbaceous	FAC	3

Non-Dominant Species	Stratum	IND	%
Ilex glabra	Sapling	FACW	5

% Dominant species FAC or wetter: 88%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-16	2.5Y 5/4	100					LOAM
16-20	2.5Y 5/2	95	5YR 3/4	5	C	M	CLAY

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region Sampling Point Number: 25

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	BOJAC FINE SANDY LOAM

Summary of Findings: **UPLAND SWALE WEST OF LAKE CHRISTINE.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	45
Liquidambar styraciflua	Tree	FAC	20
Acer rubrum	Shrub	FAC	20
Liquidambar styraciflua	Shrub	FAC	15
Carya tomentosa	Shrub	UPL	10
Toxicodendron radicans	Herbaceous	FAC	10
Smilax rotundifolia	Herbaceous	FAC	5
Smilax bona-nox	Vine	FAC	5
Smilax rotundifolia	Vine	FAC	3

Non-Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	10
Lindera benzoin	Shrub	FACW	5
Dichanthelium dichotomum	Herbaceous	FAC	3

% Dominant species FAC or wetter: 89%
Prevalence Index: 3.1
NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST
Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-1	10YR 3/3	100					LOAM
1-14	10YR 5/3	100					LOAM
14-20	10YR 6/3	90	7.5YR 5/8	10	C	M	CLAY LOAM

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 26

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND SOUTH OF FLAG 'KPL-4'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	30
Acer rubrum	Tree	FAC	25
Acer rubrum	Sapling	FAC	15
Pinus taeda	Shrub	FAC	5
Acer rubrum	Shrub	FAC	5
Vitis rotundifolia	Herbaceous	FAC	5
Lonicera japonica	Herbaceous	FACU	5
Smilax rotundifolia	Herbaceous	FAC	5
Smilax rotundifolia	Vine	FAC	3

Non-Dominant Species	Stratum	IND	%
Quercus rubra	Tree	FACU	5

% Dominant species FAC or wetter: 89%

Prevalence Index: 3.1

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-8	7.5YR 4/2	100					LOAM
8-20	10YR 6/1	95	10YR 6/8	5	C	M	LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 27

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND ABOVE FLAG 'KPJ-7'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	25
Acer rubrum	Tree	FAC	15
Liquidambar styraciflua	Sapling	FAC	10
Liquidambar styraciflua	Shrub	FAC	10
Smilax rotundifolia	Herbaceous	FAC	5
Campsis radicans	Herbaceous	FAC	3
Smilax bona-nox	Herbaceous	FAC	3

Non-Dominant Species	Stratum	IND	%

% Dominant species FAC or wetter: 100%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-6	10YR 4/2	100					LOAM
6-20	5Y 7/1	90	10YR 5/4	10	C	M	LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 28

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND NEAR FLAG 'KPO-13'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	X Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	X Geomorphic Position (D2)
		Shallow Aquitard (D3)
		FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	60
Acer rubrum	Tree	FAC	35
Pinus taeda	Sapling	FAC	5
Smilax rotundifolia	Herbaceous	FAC	15
Lonicera japonica	Herbaceous	FACU	5
Chasmanthium latifolium	Herbaceous	FAC	5
Osmunda spectabilis	Herbaceous	OBL	5

Non-Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	25
Nyssa sylvatica	Tree	FAC	25

% Dominant species FAC or wetter: 86%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-2	10YR 3/3	100					LOAM
2-20	2.5Y 5/2	80	10YR 4/6	15	C	M	CLAY LOAM
			10YR 5/8	5	C	PL	

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	X Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 29

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND NEAR FLAG 'KPO-13'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	65
Diospyros virginiana	Tree	FAC	40
Cornus florida	Sapling	FACU	15
Liquidambar styraciflua	Sapling	FAC	5
Ligustrum sinense	Shrub	FAC	15
Morella cerifera	Shrub	FAC	10
Elymus virginicus	Herbaceous	FAC	20
Dichanthelium scoparium	Herbaceous	FACW	20
Lonicera japonica	Herbaceous	FACU	10

Non-Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	25

% Dominant species FAC or wetter: 78%

Prevalence Index: 3.0

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 3/2	100					LOAM
2-6	10YR 5/2	100					CLAY LOAM
6-20	10YR 6/2	85	10YR 5/6	15	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 30

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. YOUNG	Site Longitude:	-75.97849°
Date:	10/12/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND BELOW FLAG 'KPJ-8'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	X Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	X Geomorphic Position (D2)
		Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	65
Baccharis halimifolia	Shrub	FAC	15
Pinus taeda	Shrub	FAC	5
Microstegium vimineum	Herbaceous	FAC	10
Juncus effusus	Herbaceous	OBL	5
Smilax rotundifolia	Herbaceous	FAC	3

Non-Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	10

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-6	10YR 4/3	100					LOAM
6-20	10YR 7/1	85	2.5Y 7/4	15	C	M	LOAM

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	X Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 31

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **WETLAND IN A SHALLOW DEPRESSION AT 'KPA' LINE.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	X Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: 16

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Paspalum dilatatum	Herbaceous	FAC	70

Non-Dominant Species	Stratum	IND	%
Eleocharis obtusa	Herbaceous	OBL	10
Packera anonyma	Herbaceous	FACU	6
Diodia virginiana	Herbaceous	FACW	5
Cyperus iria	Herbaceous	FACW	2
Hydrocotyle umbellata	Herbaceous	OBL	2
Ludwigia palustris	Herbaceous	OBL	2

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.7

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-1	2.5Y 4/1	100					CLAY LOAM
1-16	5Y 5/1	80	10YR 5/8	15	C	M	CLAY LOAM
			7.5YR 4/6	5	C	PL	
16-20	10YR 5/1	100					FINE SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 32

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND NEAR 'KPA' LINE.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Paspalum dilatatum	Herbaceous	FAC	70

Non-Dominant Species	Stratum	IND	%
Lespedeza procumbens	Herbaceous	UPL	40
Plantago lanceolata	Herbaceous	FACU	10
Oxalis stricta	Herbaceous	UPL	10
Cynodon dactylon	Herbaceous	FACU	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 3.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	10YR 4/3	100					LOAM
3-15	2.5Y 5/2	85	7.5YR 5/8	15	C	M	CLAY
15-20	2.5Y 6/1	98	2.5Y 5/6	2	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 33

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND IN FIELD ABOVE 'KPA' LINE; SOUTH OF JEFFERSON AVENUE.**

Hydrophytic Vegetation is Present:		Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

UNDERGROUND STORM DRAIN WITH DROP INLETS PRESENT.

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Paspalum dilatatum	Herbaceous	FAC	60
Cynodon dactylon	Herbaceous	FACU	60

Non-Dominant Species	Stratum	IND	%
Diodia teres	Herbaceous	FACU	5
Symphyotrichum racemosum	Herbaceous	FACW	3

% Dominant species FAC or wetter: 50%

Prevalence Index: 3.5

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: ____
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER NOT MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	7.5YR 5/2	100					LOAM
2-12	10YR 5/2	98	10YR 4/6	2	C	M	CLAY LOAM
12-20	10YR 5/2	90	10YR 2/1	10	INCLUSIONS	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

ASPHALT PRESENT (20%) WITHIN THE 12-20" PROFILE.

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 34

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	ACREDALE SILT LOAM

Summary of Findings: **UPLAND SOUTH OF DATA POINT '33'.**

Hydrophytic Vegetation is Present:		Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	Geomorphic Position (D2)
		Shallow Aquitard (D3)
		FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

EXISTING STORMWATER DRAIN WITH DROP INLETS PRESENT.

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Cynodon dactylon	Herbaceous	FACU	30
Paspalum dilatatum	Herbaceous	FAC	25

Non-Dominant Species	Stratum	IND	%
Symphyotrichum lateriflorum	Herbaceous	FAC	5

% Dominant species FAC or wetter: 50%

Prevalence Index: 3.5

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%:
Prevalence Index is ≤ 3.0:
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER NOT MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-5	10YR 4/3	95	7.5YR 4/6	5	C	M	FINE SANDY LOAM
5-16	10YR 5/2	100					FINE SANDY LOAM
16-20	2.5Y 6/3	99	10YR 5/1	1	D	M	FINE SANDY LOAM

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 35

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/13/2017	Soil Map Unit Name:	TETOTUM LOAM

Summary of Findings: **WETLAND SOUTH OF FLAG 'BAD-5'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	X Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	X Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	X Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Dichanthelium scoparium	Herbaceous	FACW	20
Hydrocotyle umbellata	Herbaceous	OBL	20
Persicaria hydropiperoides	Herbaceous	OBL	15
Paspalum dilatatum	Herbaceous	FAC	15

Non-Dominant Species	Stratum	IND	%
Symphyotrichum pilosum	Herbaceous	FAC	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 1.8

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	10YR 4/1	95	10YR 5/8	5	C	M	FINE SANDY LOAM
3-20	10YR 5/2	85	10YR 5/8	15	C	M	FINE SANDY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 36

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/13/2017	Soil Map Unit Name:	TETOTUM LOAM

Summary of Findings: **UPLAND SOUTHEAST OF FLAG 'BAD-29'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Pinus taeda	Tree	FAC	35
Pinus taeda	Sapling	FAC	10
Liquidambar styraciflua	Sapling	FAC	5
Acer rubrum	Shrub	FAC	20
Quercus rubra	Shrub	FACU	15
Lespedeza cuneata	Herbaceous	FACU	10
Andropogon virginicus	Herbaceous	FAC	10
Smilax rotundifolia	Vine	FAC	15
Smilax glauca	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%
Morella cerifera	Shrub	FAC	5

% Dominant species FAC or wetter: 78%

Prevalence Index: 3.2

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-11	10YR 4/1	100					FINE SANDY LOAM
11-20	2.5Y 4/1	99	2.5Y 6/6	1	C	M	FINE SANDY LOAM

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 37

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	CHAPANOKE SILT LOAM

Summary of Findings: **UPLAND AT FLAG 'KPP-5'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	PFO1/4B
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONVEX
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Quercus rubra	Tree	FACU	60
Acer rubrum	Tree	FAC	30
Nyssa sylvatica	Sapling	FAC	10
Liquidambar styraciflua	Sapling	FAC	5
Pinus taeda	Sapling	FAC	5
Ligustrum sinense	Shrub	FAC	15
Smilax rotundifolia	Herbaceous	FAC	15
Chasmanthium latifolium	Herbaceous	FAC	5

Non-Dominant Species	Stratum	IND	%
Nyssa sylvatica	Tree	FAC	15
Carpinus caroliniana	Tree	FAC	15

% Dominant species FAC or wetter: 88%

Prevalence Index: 3.3

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	Color (Moist)	%	Color (Moist)	%	Type	Loc	Texture
0-4	10YR 4/3	100					SANDY LOAM
4-20	10YR 4/4	85	7.5YR 5/6	10	C	M	SANDY CLAY LOAM
			7.5YR 4/6	5	C	PL	

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 38

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	TOMOTELEY LOAM

Summary of Findings: **WETLAND AT FLAG 'KPP-5'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	PFO4A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	X Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	75
Acer rubrum	Tree	FAC	25
Acer rubrum	Sapling	FAC	25
Nyssa sylvatica	Sapling	FAC	10
Vaccinium formosum	Shrub	FAC	10
Woodwardia areolata	Herbaceous	OBL	50
Microstegium vimineum	Herbaceous	FAC	15
Smilax rotundifolia	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.5

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-4	10YR 3/2	100					SANDY LOAM
4-20	10YR 4/2	85	7.5YR 4/6	15	C	M	SANDY CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 39

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	TOMOTLEY LOAM

Summary of Findings: **UPLAND ABOVE FLAG 'SKA-54'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	PFO1/4B
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	65
Ligustrum sinense	Sapling	FAC	15
Acer rubrum	Sapling	FAC	10
Ligustrum sinense	Shrub	FAC	10
Persea borbonia	Shrub	FACW	5
Microstegium vimineum	Herbaceous	FAC	25
Lonicera japonica	Herbaceous	FACU	15
Woodwardia areolata	Herbaceous	OBL	10

Non-Dominant Species	Stratum	IND	%
Vitis rotundifolia	Herbaceous	FAC	10
Toxicodendron radicans	Herbaceous	FAC	5

% Dominant species FAC or wetter: 88%

Prevalence Index: 2.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-3	10YR 3/3	100					LOAM
3-8	2.5Y 3/2	100					CLAY LOAM
8-20	10YR 4/2	85	10YR 4/6	5	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 40

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	TOMOTLEY LOAM

Summary of Findings: **WETLAND AT FLAG 'SKA-50'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	PFO1/4B
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	DRAINAGEWAY
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	40
Acer rubrum	Tree	FAC	30
Acer rubrum	Sapling	FAC	15
Ligustrum sinense	Shrub	FAC	35
Woodwardia areolata	Herbaceous	OBL	40
Microstegium vimineum	Herbaceous	FAC	15
Smilax rotundifolia	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%
Nyssa sylvatica	Tree	FAC	15

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.6

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-6	10YR 3/2	100					LOAM
6-20	10YR 4/2	85	10YR 5/8	15	C	M	CLAY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 41

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	TOMOTLEY LOAM

Summary of Findings: **UPLAND AT FLAG 'KPS-19'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	PFO1/4B
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	60
Acer rubrum	Tree	FAC	30
Quercus phellos	Sapling	FACW	15
Quercus rubra	Sapling	FACU	10
Morella cerifera	Shrub	FAC	10
Microstegium vimineum	Herbaceous	FAC	70

Non-Dominant Species	Stratum	IND	%
Diospyros virginiana	Tree	FAC	15
Woodwardia areolata	Herbaceous	OBL	10

% Dominant species FAC or wetter: 83%

Prevalence Index: 2.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-8	10YR 2/2	100					LOAM
8-20	10YR 4/2	100					CLAY LOAM

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 42

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	S. KUPIEC	Site Longitude:	-75.97849°
Date:	10/16/2017	Soil Map Unit Name:	NAWNEY SILT LOAM

Summary of Findings: **WETLAND AT FLAG 'KPS-19'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	PFO1/4B
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	X Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	40
Acer rubrum	Tree	FAC	25
Nyssa sylvatica	Sapling	FAC	10
Quercus phellos	Sapling	FACW	5
Morella cerifera	Shrub	FAC	25
Vaccinium formosum	Shrub	FAC	10
Microstegium vimineum	Herbaceous	FAC	35
Woodwardia areolata	Herbaceous	OBL	15

Non-Dominant Species	Stratum	IND	%
Dichanthelium scoparium	Herbaceous	FACW	10
Lonicera japonica	Herbaceous	FACU	10

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.8

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-6	10YR 2/2	100					LOAM
6-20	10YR 4/2	85	10YR 5/8	10	C	M	CLAY LOAM
			10YR 4/6	5	C	PL	

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 43

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **WETLAND AT FLAG 'KPD-7'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: O

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Morella cerifera	Shrub	FAC	5
Juncus scirpoides	Herbaceous	FACW	60
Juncus tenuis	Herbaceous	FAC	60

Non-Dominant Species	Stratum	IND	%
Scirpus pendulus	Herbaceous	OBL	30
Packera anonyma	Herbaceous	FACU	20
Xyris ambigua	Herbaceous	OBL	15
Dichanthelium aciculare	Herbaceous	FACU	10
Rhexia virginica	Herbaceous	FACW	5
Dichanthelium scabriusculum	Herbaceous	OBL	5

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.4

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 4/2	90	10YR 5/3	10	C	M	SANDY LOAM
2-20	5Y 5/2	95	7.5YR 5/8	5	C	M	SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	X Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 44

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	NEWHAN FINE SAND

Summary of Findings: **UPLAND NEAR FLAG 'KPD-11'.**

Hydrophytic Vegetation is Present:		Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
Surface Water (A1)	Water Stained Leaves (B9)	Surface Soil Cracks (B6)
High Water Table (A2)	Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Marl Deposits (B15)	Drainage Patterns (B10)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)	Thin Muck Surface (C7)	Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Other	X Geomorphic Position (D2)
		Shallow Aquitard (D3)
		FAC-Neutral Test (D5)
		Sphagnum Moss (D8)

Water Depths (inches):
Surface Water:
Water Table:
Saturated soil: 18

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Diodia teres	Herbaceous	FACU	60
Andropogon virginicus	Herbaceous	FAC	30

Non-Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	10
Verbesina occidentalis	Herbaceous	FACU	5
Linum medium	Herbaceous	FAC	5
Juncus scirpoides	Herbaceous	FACW	5
Helianthus angustifolius	Herbaceous	FACW	3

% Dominant species FAC or wetter: 50%

Prevalence Index: 3.6

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation:
Dominance Test >50%:
Prevalence Index is ≤ 3.0:
Problematic Hydrophytic Vegetation:

Remarks: **VEGETATION PARAMETER NOT MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-14	2.5Y 5/3	95	7.5YR 5/3	5	C	M	FINE SAND
14-18	10YR 6/4	90	10YR 5/2	10	D	M	FINE SAND
18-20	2.5Y 6/3	98	2.5Y 6/8	2	C	M	FINE SAND

Hydric Soil Indicators:

Histosol (A1)	Coast Prairie Redox (A16)	Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
Histic Epipedon (A2)	Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	
Black Histic (A3)	Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	1cm Muck (A9)
Hydrogen Sulfide (A4)	Sandy Redox (S5)	Marl (F10)	2cm Muck (A10)
Stratified Layers (A5)	Stripped Matrix (S6)	Depleted Ochric (F11)	Reduced Vertic (F18)
Organic Bodies (A6)	Dark Surface (S7)	Iron-Manganese Masses (F12)	Piedmont Floodplain Soils (F19)
5cm Mucky Mineral (A7)	Polyvalue Below Surface (S8)	Umbric Surface (F13)	Anomalous Bright Loamy Soils (F20)
Muck Presence (A8)	Thin Dark Surface (S9)	Delta Ochric (F17)	Red Parent Material (TF2)
1 cm Muck (A9)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)	Very Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A1	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)	Other
Thick Dark Surface (A12)	Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type:
Depth (inches):

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 45

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **WETLAND NEAR FLAG 'KPC-29'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: O

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Morella cerifera	Shrub	FAC	7
Juncus scirpoides	Herbaceous	FACW	60
Juncus tenuis	Herbaceous	FAC	50

Non-Dominant Species	Stratum	IND	%
Mikania scandens	Herbaceous	FACW	30
Dichanthelium scoparium	Herbaceous	FACW	20
Echinochloa muricata	Herbaceous	FACW	15
Solidago sempervirens	Herbaceous	FACW	5
Rhexia virginica	Herbaceous	FACW	5
Erigeron annuus	Herbaceous	FACU	2

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.3

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 3/3	100					LOAMY SAND
2-4	2.5Y 5/2	93	10YR 3/6	5	C	M	SAND
			10YR 6/8	2	C	PL	
4-20	2.5Y 5/2	80	7.5YR 4/6	20	C	M	SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	X Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 46

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **UPLAND NEAR FLAG 'KPC-29',**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONVEX
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	1-3

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	10
Juncus scirpoides	Herbaceous	FACW	10
Juncus tenuis	Herbaceous	FAC	10
Hypericum crux-andreae	Herbaceous	FACW	10
Digitaria ischaemum	Herbaceous	UPL	10

Non-Dominant Species	Stratum	IND	%
Persicaria pensylvanica	Herbaceous	FACW	5
Cyperus iria	Herbaceous	FACW	5
Echinochloa muricata	Herbaceous	FACW	5
Panicum virgatum	Herbaceous	FAC	3
Dichanthelium scoparium	Herbaceous	FACW	3
Rhynchospora inexpansa	Herbaceous	FACW	2

% Dominant species FAC or wetter: 60%

Prevalence Index: 2.9

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 5/3	100					SANDY CLAY LOAM
2-3	2.5Y 3/3	100					SANDY CLAY LOAM
3-8	5G 5/1	100					CLAY LOAM
8-20	2.5Y 5/6	90	7.5YR 5/6	10	C	M	FINE SANDY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	X Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOILS ARE HIGHLY VARIABLE AND DISTURBED.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 47

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	8/2/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **WETLAND NEAR FLAG 'KPC-44'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-2

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: O

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Juncus scirpoides	Herbaceous	FACW	20
Rhynchospora inexpansa	Herbaceous	FACW	20
Andropogon virginicus	Herbaceous	FAC	15

Non-Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	10
Diodia virginiana	Herbaceous	FACW	10
Rhexia virginica	Herbaceous	FACW	2

% Dominant species FAC or wetter: 100%

Prevalence Index: 2.5

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-2	10YR 4/2	98	10YR 3/6	2	C	M	SAND
2-4	10YR 5/3	100					SAND
4-20	2.5Y 5/1	98	2.5Y 6/6	2	C	M	SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	X Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 48

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	K. PRESGRAVES	Site Longitude:	-75.97849°
Date:	10/17/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **UPLAND ABOVE FLAG 'KPC-46'.**

Hydrophytic Vegetation is Present:		Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	SLOPE
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	___ Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Dichanthelium aciculare	Herbaceous	FACU	70
Andropogon virginicus	Herbaceous	FAC	40

Non-Dominant Species	Stratum	IND	%
Juncus tenuis	Herbaceous	FAC	15
Juncus scirpoides	Herbaceous	FACW	10
Diodia teres	Herbaceous	FACU	10
Schoenoplectus tabernaemontani	Herbaceous	OBL	3

% Dominant species FAC or wetter: 50%

Prevalence Index: 3.4

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: ____
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER NOT MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-5	10YR 3/3	100					LOAMY SAND
5-10	2.5Y 6/4	85	10YR 5/8	15	C	M	FINE SAND
10-17	10YR 6/6	90	7.5YR 6/3	10	C	M	FINE SAND

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 49

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/28/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **UPLAND NORTHEAST OF FLAG 'KPT-11'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:		Disturbed Parameters (see Remarks):		Local Relief:	NONE
Wetland Hydrology is Present:		Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:		Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		___ FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ____
Water Table: ____
Saturated soil: >20

Remarks: **HYDROLOGY PARAMETER NOT MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	30
Prunus serotina	Tree	FACU	25
Quercus rubra	Tree	FACU	15
Liquidambar styraciflua	Sapling	FAC	10
Prunus serotina	Sapling	FACU	10
Quercus rubra	Sapling	FACU	5
Morella cerifera	Shrub	FAC	30
Liquidambar styraciflua	Shrub	FAC	10
Vitis rotundifolia	Herbaceous	FAC	15
Smilax glauca	Herbaceous	FAC	10
Vitis rotundifolia	Vine	FAC	25
Smilax glauca	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%
Diospyros virginiana	Tree	FAC	5
Ilex opaca	Shrub	FAC	5
Lonicera japonica	Herbaceous	FACU	5
Smilax rotundifolia	Vine	FAC	5

% Dominant species FAC or wetter: 67%

Prevalence Index: 3.3

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ____
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: ____
Problematic Hydrophytic Vegetation: ____

Remarks: **VEGETATION PARAMETER MET.**

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-6	2.5Y 3/2	100					FINE SAND
6-20	2.5Y 4/4	100					FINE SAND

Hydric Soil Indicators:

			Indicators for Problematic Hydric Soils
___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ____
Depth (inches): ____

Remarks: **SOIL PARAMETER NOT MET.**

Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region

Sampling Point Number: 50

Stantec

Project:	2017 SMR CAMP PENDLETON WETLAND DELINEATION		
Applicant:	VIRGINIA DEPARTMENT OF MILITARY AFFAIRS	Section/Township/Range:	N/A
City/County:	VIRGINIA BEACH	Subregion (LRR or MLRA):	T
State:	VIRGINIA	Site Latitude:	36.816431°
Investigator(s):	B. ASHLEY	Site Longitude:	-75.97849°
Date:	10/27/2017	Soil Map Unit Name:	DUCKSTON FINE SAND

Summary of Findings: **WETLAND SOUTH OF FLAG 'KPT-11'.**

Hydrophytic Vegetation is Present:	X	Normal Circumstances:	X	NWI Classification:	N/A
Hydric Soils are Present:	X	Disturbed Parameters (see Remarks):		Local Relief:	CONCAVE
Wetland Hydrology is Present:	X	Problematic Parameters (see Remarks):		Landform:	FLAT
Sampled Area is within a Wetland:	X	Atypical Climate/Hydrology (see Remarks):		Slope %:	0-1

Hydrology Parameter:

Primary Indicators:		*Secondary Indicators:*
___ Surface Water (A1)	___ Water Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	___ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	___ Marl Deposits (B15)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Stunted or Stressed Plants (D1)
___ Inundation Visible on Aerial Imagery (B7)	___ Other	X Geomorphic Position (D2)
		___ Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		___ Sphagnum Moss (D8)

Water Depths (inches):
Surface Water: ___
Water Table: ___
Saturated soil: 10

Remarks: **HYDROLOGY PARAMETER MET.**

Vegetation Parameter:

Dominant Species	Stratum	IND	%
Liquidambar styraciflua	Tree	FAC	35
Nyssa sylvatica	Tree	FAC	20
Nyssa sylvatica	Sapling	FAC	20
Liquidambar styraciflua	Sapling	FAC	10
Pinus taeda	Sapling	FAC	10
Vaccinium corymbosum	Shrub	FACW	15
Quercus rubra	Shrub	FACU	10
Woodwardia areolata	Herbaceous	OBL	40
Smilax rotundifolia	Vine	FAC	10

Non-Dominant Species	Stratum	IND	%
Acer rubrum	Tree	FAC	10
Quercus phellos	Shrub	FACW	5
Juncus effusus	Herbaceous	OBL	10
Osmundastrum cinnamomeum	Herbaceous	FACW	5

% Dominant species FAC or wetter: 89%

Prevalence Index: 2.4

NOTE: SPECIES INDICATOR STATUS ACCORDING TO 2016 NATIONAL WETLAND PLANT LIST

Calculated using all species present.

Rapid Test for Hydrophytic Vegetation: ___
Dominance Test >50%: X
Prevalence Index is ≤ 3.0: X
Problematic Hydrophytic Vegetation: ___

Remarks: **VEGETATION PARAMETER MET.**

UNIDENTIFIED DOMINANT SPECIES OF CAREX (20%) PRESENT.

Soil Parameter:

	Matrix		Redox Features				
Depth (inches)	**Color (Moist)**	**%**	**Color (Moist)**	**%**	**Type**	**Loc**	**Texture**
0-4	10YR 2/1	100					FINE SANDY LOAM
4-15	10YR 4/2	90	7.5YR 4/6	10	C	M	SANDY LOAM
15-20	2.5Y 3/2	85	7.5YR 4/6	15	C	M	FINE SANDY LOAM

Hydric Soil Indicators:

___ Histosol (A1)	___ Coast Prairie Redox (A16)	___ Redox Dark Surface (F6)	*Indicators for Problematic Hydric Soils*
___ Histic Epipedon (A2)	___ Sandy Mucky Mineral (S1)	___ Depleted Dark Surface (F7)	
___ Black Histic (A3)	___ Sandy Gleyed Matrix (S4)	___ Redox Depressions (F8)	___ 1cm Muck (A9)
___ Hydrogen Sulfide (A4)	___ Sandy Redox (S5)	___ Marl (F10)	___ 2cm Muck (A10)
___ Stratified Layers (A5)	___ Stripped Matrix (S6)	___ Depleted Ochric (F11)	___ Reduced Vertic (F18)
___ Organic Bodies (A6)	___ Dark Surface (S7)	___ Iron-Manganese Masses (F12)	___ Piedmont Floodplain Soils (F19)
___ 5cm Mucky Mineral (A7)	___ Polyvalue Below Surface (S8)	___ Umbric Surface (F13)	___ Anomalous Bright Loamy Soils (F20)
___ Muck Presence (A8)	___ Thin Dark Surface (S9)	___ Delta Ochric (F17)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)	___ Very Shallow Dark Surface (TF12)
___ Depleted Below Dark Surface (A1	___ Loamy Gleyed Matrix (F2)	___ Piedmont Floodplain Soils (F19)	___ Other
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Anomalous Bright Loamy Soils (F20)	

Restrictive Layer (If Observed)
Type: ___
Depth (inches): ___

Remarks: **SOIL PARAMETER MET.**

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

June 27, 2018

PRELIMINARY JURISDICTIONAL DETERMINATION

Eastern Virginia Regulatory Section
NAO-2018-0436 (Lake Christine / Atlantic Ocean)

LTC Timothy Pillion, Garrison Commander
Camp Pendleton State Military Reserve
203 Red Horse Drive
Virginia Beach, Virginia
23451

Dear LTC Pillion:

This letter is in regard to your request for a preliminary jurisdictional determination for waters of the U.S. (including wetlands) on property known as Camp Pendleton, located on a 332.01 acre parcel in Virginia Beach, Virginia.

The map entitled "Delineation Map", by Stantec dated revised on 2018-06-15 provides the location(s) of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region,* and the positive indicators of wetland hydrology, hydric soils, hydrophytic vegetation and the presence of an ordinary high water mark. This letter is not confirming the Cowardin classifications of these aquatic resources.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination and the attachments hereto if you agree with the determination, or you may request and obtain an approved jurisdictional determination. This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application.

Enclosed is a copy of the “Preliminary Jurisdictional Determination Form”. Please review the document, sign, and return one copy to me either via email (brian.c.denson@usace.army.mil) or via standard mail to US Army Corps of Engineers, Regulatory Office, and ATTN: Brian Denson, 803 Front Street Norfolk, Virginia 23510 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands can be relied upon for no more than five years from the date of this letter. New information may warrant revision.

If you have any questions, please contact me, either via telephone at (757) 201-7792 or via email at brian.c.denson@usace.army.mil.

Sincerely,



Brian Denson
Project Manager
Eastern Virginia Regulatory Section

Enclosure(s): Referenced figures, Supplemental Information, Preliminary Jurisdictional Determination Form

Site Data - SMR Camp Pendleton

Study Area	304.04 Acres ±
Estuarine Emergent Intertidal Wetlands (E2EM)	0.40 Acres ±
Palustrine Forested Wetlands (PFO)	15.46 Acres ±
Palustrine Scrub-Shrub Wetlands (PSS)	0.26 Acres ±
Palustrine Emergent Wetlands (PEM)	1.73 Acres ±
Upper Perennial Stream Channels (R3)	0.01 Acres ± (244 L.F. ±)
Intermittent Stream Channels (R4)	0.02 Acres ± (272 L.F. ±)
Jurisdictional Ditches (R4)	0.08 Acres ± (1,757 L.F. ±)

Previously Delineated Site Data - Lake Christine

Study Area	27.97 Acres ±
Wetlands	4.50 Acres ±
Open Waters	18.42 Acres ±
Jurisdictional Ditches	0.15 Acres ± (972 L.F. ±)

Site Data - Combined

Study Area	332.01 Acres ±
Wetlands	22.35 Acres ±
Upper Perennial Stream Channels (R3)	0.01 Acres ± (244 L.F. ±)
Intermittent Stream Channels (R4)	0.02 Acres ± (272 L.F. ±)
Jurisdictional Ditches	0.23 Acres ± (2,729 L.F. ±)
Open Waters	18.42 Acres ±

Figure No.

5

Title

Delineation Map

Map Date: 2018-03-05
Revised Date: 2018-06-15

Client/Project

Commonwealth of Virginia
2017 SMR Camp Pendleton Wetland Delineation

Project Location

City of Virginia Beach, VA

203400975
Prepared by MGS on 2017-12-11
Technical Review by TPS on 2018-01-05
Independent Review by KHP on 2018-01-05

0 500 1,000 Feet

1:3,000 (At original document size of 24 x 36)

Legend

- Previously Delineated Study Area
- 2-Foot Contour
- Approximate Stormwater Facility
- Approximate Estuarine Emergent Intertidal Wetland Limits (E2EM)
- Approximate Jurisdictional Ditch Limits
- Approximate Palustrine Emergent Wetland Limits (PEM)
- Approximate Palustrine Forested Wetland Limits (PFO)
- Approximate Palustrine Scrub-Shrub Wetland Limits (PSS)
- Approximate Upper Perennial Stream Channel Limits (R3)
- Approximate Intermittent Stream Channel Limits (R4)
- Previously Delineated Jurisdictional Ditch
- Previously Delineated Open Water
- Previously Delineated Wetland Limits



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. The limits of waters of the U.S., including wetlands within the previously delineated study area, have been confirmed by the U.S. Army Corps of Engineers, Confirmation #NAO-2013-1616.
3. The limits of waters of the U.S., including wetlands, shown on this map have been field located by means of sub-meter capable GPS technology and are for planning purposes only.
4. Orthoimagery © Bing Maps
5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Stantec

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

I:\2034\00975\03_data\gis_cad\gis\00975_e_delin.mxd Revised: 2018-06-15 By: lberryman

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION:

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):
Wednesday, June 27, 2018

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
LTC Timothy Pillion, Garrison Commander
Camp Pendleton State Military Reserve
203 Red Horse Drive
Virginia Beach, Virginia
23451

C. DISTRICT OFFICE: Norfolk District (CENAO-REG)

FILE NAME: Camp Pendleton JD

FILE NUMBER: NAO-2018-0436

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: **VIRGINIA** County/parish/borough: City: Virginia Beach

Center coordinates of site (lat/long in degree decimal format):

Latitude: 36.816431 ° N Longitude: -75.97849 ° W

Universal Transverse Mercator: WGS 84

Name of nearest waterbody: Lake Christine/Atlantic Ocean

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 3245 linear feet; width (ft); and/or 18.42 acres.

Cowardin Class: 3245 lf of R3, R4, and Ditches with OHW. 18.42 ac OW

Stream Flow: Perrenial and Intermittent and Open Waters

Wetlands: 22.35 acres

Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): 5/25/2018

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

3. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA:

Data reviewed for preliminary JD (check all that apply) - checked items should be included in case file and, where checked and requested, appropriately reference sources below.

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☒ U.S. Geological Survey Hydrologic Atlas:

☐ USGS NHD data.

☒ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name:

☒ USDA Natural Resources Conservation Service Soil Survey.

Citation:

☒ National wetlands inventory map(s). Cite name:

☐ State/Local wetland inventory map(s):

☐ FEMA/FIRM maps:

☐ 100-year Floodplain Elevation: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): Google Earth, VGIN, CIR, Various Years

or ☒ Other (Name & Date): LIDAR

☒ Previous determination(s):

File no. and date of response letter: NAO-2013-1616 / September 23, 2013

☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

DENSON.BRIAN.C.1168799671

Digitally signed by DENSON.BRIAN.C.1168799671
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=DENSON.BRIAN.C.1168799671
Date: 2018.06.25 16:20:14 -04'00'

Signature
Regulatory Project Manager
(REQUIRED)

2018-06-25

Date

Signature of person requesting Preliminary JD
(REQUIRED, unless obtaining the signature is impracticable)

6/27/18

Date

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

June 27, 2018

Supplemental Preapplication Information

Project Number: NAO-2018-0436
Applicant: LTC Timothy Pillion, Garrison Commander
Camp Pendleton State Military Reserve
Project Location: Camp Pendleton, Virginia Beach, VA.

1. A search of the Virginia Department of Historic Resources data revealed the following:

☐ No known historic properties are located on the property.

☐ The following known architectural resources are located on the property:

☐ The following known archaeological resources are located on the property:

☒ The following known historic resources are located in the vicinity of the property (potential for effects to these resources from future development):

NOTE:

1) The information above is for planning purposes only. In most cases, the property has not been surveyed for historic resources. Undiscovered historic resources may be located on the subject property or adjacent properties and this supplemental information is not intended to satisfy the Corps' requirements under Section 106 of the National Historic Preservation Act (NHPA).

2) Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.

VDHR Archaeological Resources

DHR ID	Site Name	Site Category	Time Period	NR Eligible	Restricted
44VB0387	-	Military/Defense	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-
44VB0388	-	Military/Defense	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-
44VB0389	-	Industry/Processing/Extraction, Military/Defense	Pre-Contact, World War I to World War II (1917 - 1945),	-	-

			The New Dominion (1946 - 1991)		
44VB0391	-	Domestic	Reconstruction and Growth (1866 - 1916)	-	-
44VB0390	-	Military/Defense	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-
44VB0386	-	Military/Defense	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-
44VB0385	-	Military/Defense	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-
44VB0392	-	Domestic	Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	-	-
44VB0343	Camp Pendleton ANG Site C-1	Military/Defense	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible	Restricted: No release
44VB0393	-	Domestic	Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865),	-	-

			Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)		
44VB0394	-	Industry/Processing/Extraction, Military/Defense	Pre-Contact, Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-
44VB0395	-	Industry/Processing/Extraction, Military/Defense	Pre-Contact, Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-
44VB0396	-	Military/Defense	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	-	-

3) VDHR Architectural Resources

DHR ID	Address	Restricted	Property Names
134-0413-0029	Jefferson Avenue	-	Building 84 - Camp Pendleton SMR (Current), Building T-84 - Camp Pendleton SMR (Historic)
134-0413-0092	Jefferson Avenue	-	Building 414 - Camp Pendleton SMR (Current), Building T-414 - Camp Pendleton SMR (Historic)

134-0413-0072	C Street	-	Building 349 - Camp Pendleton SMR (Current), Building T-349 - Camp Pendleton SMR (Historic)
134-0413-0071	6 Half Street, B Street, C Street	-	Building 348 - Camp Pendleton SMR (Current), Building T-348 - Camp Pendleton SMR (Historic)
134-0413-0030	E Street	-	Building 85 - Camp Pendleton SMR (Current), Building T-85 - Camp Pendleton SMR (Historic)
134-0413-0091	Jefferson Avenue	-	Building 413 - Camp Pendleton SMR (Current), Building T-413 - Camp Pendleton SMR (Historic)
134-0413-0073	7th Street, C Street	-	Building 350 - Camp Pendleton SMR (Current), Building T-350 - Camp Pendleton SMR (Historic)
134-0413-0090	Jefferson Avenue	-	Building 412 - Camp Pendleton SMR (Current), Building T-412 - Camp Pendleton SMR (Historic)
134-0413-0076	7th Street, C Street	-	Building 354 - Camp Pendleton SMR (Current), Building T-354 - Camp Pendleton SMR (Historic)
134-0413-0102	C Street, Jefferson Avenue	-	Building 434 - Camp Pendleton SMR (Current), Building T- 434 - Camp Pendleton SMR (Historic)
134-0413-0010	D Street, Jefferson Avenue	-	Building 57 - Camp Pendleton SMR (Current), Building T-57 - Camp Pendleton SMR (Historic)
134-0413-0075	7th Street, B Street, C Street, Jefferson Avenue	-	Building 353 - Camp Pendleton SMR (Current), Building T-353 - Camp Pendleton SMR (Historic)
134-0413-0093	D Street, Jefferson Avenue	-	Building 416 - Camp Pendleton SMR (Current), Building T-416 - Camp Pendleton SMR (Historic)
134-0413-0077	C Street, Jefferson Avenue	-	Building 355 - Camp Pendleton SMR (Current), Building T-355 - Camp Pendleton SMR (Historic)

134-0413-0028	E Street, Jefferson Avenue	-	Building 83 - Camp Pendleton SMR (Current)
134-0413-0099	D Street, Jefferson Avenue	-	Building 427 - Camp Pendleton SMR (Current), Building T- 427 - Camp Pendleton SMR (Historic)
134-0413-0098	Jefferson Avenue	-	Building 426 - Camp Pendleton SMR (Current), Building T- 426 - Camp Pendleton SMR (Historic), Chapel (Historic/Current)
134-0413-0162	D Street, Headquarters Road	-	Field between Headquarters Road and D Street - Camp Pendleton SMR (Function/Location)
134-0413-0011	D Street	-	Building 59 - Camp Pendleton SMR (Current), Building T-59 - Camp Pendleton SMR (Historic)
134-0413-0027	8th Street, D Street, E Street, Jefferson Avenue	-	Building 82 - Camp Pendleton SMR (Current), Building T-82 - Camp Pendleton SMR (Historic)
134-0413-0012	D Street	-	Building 60 - Camp Pendleton SMR (Current), Building T-60 - Camp Pendleton SMR (Current)
134-0413-0088	Headquarters Road	-	Building 410 - Camp Pendleton SMR (Current), Building T-410 - Camp Pendleton SMR (Historic)
134-0413-0013	D Street	-	Building 61 - Camp Pendleton SMR (Current), Building T-61 - Camp Pendleton SMR (Current)
134-0413-0196	D Street	Unrestricted	Building 61 Shed - Camp Pendleton SMR (Current)
134-0413-0185	D Street	-	Building 61Shed - Camp Pendleton SMR (Current)
134-0413-0014	D Street	-	Building 62 - Camp Pendleton SMR (Current), Building T-62 - Camp Pendleton SMR (Current)

134-0413-0106	Headquarters Road	-	Building 448 - Camp Pendleton SMR (Current), Building T- 448 - Camp Pendleton SMR (Historic)
134-0413-0015	D Street	-	Building 63 - Camp Pendleton SMR (Current), Building T-63 - Camp Pendleton SMR (Historic)
134-0413-0016	D Street	-	Building 64/T-64 - Camp Pendleton SMR (Current)
134-0413-0005	Headquarters Road	-	Building 13 - Camp Pendleton SMR (Current), Building T-13 - Camp Pendleton SMR (Historic)
134-0413-0017	8th Street, D Street	-	Building 65 - Camp Pendleton SMR (Current), Building T-65 - Camp Pendleton SMR (Historic)
134-0413-0018	8th Street, D Street	-	Building 66 - Camp Pendleton SMR (Current), Building T-66 - Camp Pendleton SMR (Historic)
134-0413-0019	8th Street, D Street	-	Building 67 - Camp Pendleton SMR (Current), Building T-67 - Camp Pendleton SMR (Historic)
134-0413-0004	Headquarters Road	-	Building 8 - Camp Pendleton SMR (Current)
134-0413-0169	Red Horse Drive	-	Red Horse Memorial - Camp Pendleton SMR (Current)
134-0413-0190	8th Street, D Street	-	Buildings 204 - Camp Pendleton SMR (Current)
134-0413-0089	Headquarters Road	-	Building 411 - Camp Pendleton SMR (Current), Building T-411 - Camp Pendleton SMR (Historic)
134-0413-0020	South Birdneck Road	Unrestricted	Building 69 - Camp Pendleton SMR (Current)

134-0413-0021	South Birdneck Road	Unrestricted	Building 73 - Camp Pendleton SMR (Current)
134-0413-0191	D Street	-	Buildings 205 - Camp Pendleton SMR (Current)
134-0413-0022	South Birdneck Road	Unrestricted	Building 74 - Camp Pendleton SMR (Current)
134-0413-0133	8th Street, D Street	-	Buildings 203 - Camp Pendleton SMR (Current)
134-0413-0006	Headquarters Road	-	Building 18 - Camp Pendleton SMR (Current), Building T-18 - Camp Pendleton SMR (Historic)
134-0413-0023	South Birdneck Road	Unrestricted	Building 75 - Camp Pendleton SMR (Current)
134-0413-0024	South Birdneck Road	Unrestricted	Building 76 - Camp Pendleton SMR (Current)
134-0413-0025	South Birdneck Road	Unrestricted	Building 77 - Camp Pendleton SMR (Current)
134-0413-0003	Headquarters Road	-	Building 4 - Camp Pendleton SMR (Current)
134-0413-0186	Headquarters Road	-	Shed-Building 4 - Camp Pendleton SMR (Current)
134-0413-0085	South Birdneck Road	-	Building 407- Camp Pendleton SMR (Current)
134-0413-0087	South Birdneck Road	-	Building 409- Camp Pendleton SMR (Current)

134-0413-0086	South Birdneck Road	-	Building 408 - Camp Pendleton SMR (Current)
134-0413-0084	South Birdneck Road	-	Building 405 - Camp Pendleton SMR (Current)
134-0413-0083	South Birdneck Road	-	Building 404 - Camp Pendleton SMR (Current)
134-0413-0131	7th Street, B Street	-	Picnic Area (Descriptive), Site 120 - Camp Pendleton SMR (Current)
134-0413-0151	4th Street	-	Building 326 - Camp Pendleton SMR (Current), Building T-326 - Camp Pendleton SMR (Historic)
134-0413-0054	5 Half Street, B Street	-	Building 331 - Camp Pendleton SMR (Current), Building T-331 - Camp Pendleton SMR (Historic)
134-0413-0059	5 Half Street, B Street	-	Building 336 - Camp Pendleton SMR (Current), Building T-336 - Camp Pendleton SMR (Historic)
134-0413-0064	6 Half Street, B Street	-	Building 341 - Camp Pendleton SMR (Current), Building T-341 - Camp Pendleton SMR (Historic)
134-0413-0069	6 Half Street, B Street	-	Building 346 - Camp Pendleton SMR (Current), Building T-346 - Camp Pendleton SMR (Historic)
134-0413-0050	4th Street, B Street, C Street	-	Building 327 - Camp Pendleton SMR (Current), Building T-327 - Camp Pendleton SMR (Historic)
134-0413-0055	5 Half Street, B Street, C Street	-	Building 332 - Camp Pendleton SMR (Current), Building T-332 - Camp Pendleton SMR (Historic)
134-0413-0060	5 Half Street, B Street, C Street	-	Building 337 - Camp Pendleton SMR (Current), Building T-337 - Camp Pendleton SMR (Historic)

134-0413-0065	6 Half Street, B Street, C Street	-	Building 342 - Camp Pendleton SMR (Current), Building T-342 - Camp Pendleton SMR (Historic)
134-0413-0070	6 Half Street	-	Building 347 - Camp Pendleton SMR (Current), Building T-347 - Camp Pendleton SMR (Historic)
134-0413-0074	B Street, Jefferson Avenue	-	Building 352 - Camp Pendleton SMR (Current), Building T-352 - Camp Pendleton SMR (Historic)
134-0413-0051	4th Street, B Street, C Street	-	Building 328 - Camp Pendleton SMR (Current), Building T-328 - Camp Pendleton SMR (Historic)
134-0413-0056	5 Half Street, B Street, C Street	-	Building 333 - Camp Pendleton SMR (Current), Building T-333 - Camp Pendleton SMR (Historic)
134-0413-0187	Headquarters Road	-	Tank (Current)
134-0413-0061	5 Half Street, B Street, C Street	-	Building 338 - Camp Pendleton SMR (Current), Building T-338 - Camp Pendleton SMR (Historic)
134-0413-0066	6 Half Street, B Street, C Street	-	Building 343 - Camp Pendleton SMR (Current), Building T-343 - Camp Pendleton SMR (Historic)
134-0413-0197	Headquarters Road	-	Map Kiosk (Descriptive), Structure 410a (Current)
134-0413-0053	C Street	-	Building 330 - Camp Pendleton SMR (Current), Building T-330 - Camp Pendleton SMR (Historic)
134-0413-0057	C Street	-	Building 334 - Camp Pendleton SMR (Current), Building T-334 - Camp Pendleton SMR (Historic)
134-0413-0058	C Street	-	Building 335 - Camp Pendleton SMR (Current), Building T-335 - Camp Pendleton SMR (Historic)

134-0413-0062	C Street	-	Building 339 - Camp Pendleton SMR (Current), Building T-339 - Camp Pendleton SMR (Historic)
134-0413-0063	C Street	-	Building 340 - Camp Pendleton SMR (Current), Building T-340 - Camp Pendleton SMR (Historic)
134-0413-0067	C Street	-	Building 344 - Camp Pendleton SMR (Current), Building T-344 - Camp Pendleton SMR (Historic)
134-0413-0068	C Street	-	Building 345 - Camp Pendleton SMR (Current), Building T-345 - Camp Pendleton SMR (Historic)
134-0413-0166	Jefferson Avenue	-	Mdular House 2- Camp Pendleton SMR (Current)
134-0413-0112	South Birdneck Road	Unrestricted	Building 86 - Camp Pendleton SMR (Current)
134-0413-0165	Jefferson Avenue	-	Modular Building 1 Camp Pendleton SMR (Current)
134-0413-0113	South Birdneck Road	Unrestricted	Building 87 - Camp Pendleton SMR (Current)
134-0413-0103	South Birdneck Road	Unrestricted	Building 435 - Camp Pendleton SMR (Historic)
134-0413-0031	Jefferson Avenue	-	Building 5 - Camp Pendleton SMR (Historic), Building 88 - Camp Pendleton SMR (Current), Building T-88 - Camp Pendleton SMR (Historic)
134-0413-0201	E Street, Jefferson Avenue	-	Building 101 - Camp Pendleton SMR (Current)
134-0413-0032	Jefferson Avenue	-	Building 4 - Camp Pendleton SMR (Historic), Building 89 - Camp Pendleton SMR (Current), Building T-89 - Camp Pendleton SMR (Historic)

134-0413-0205	Jefferson Avenue	-	Shed, Building T-89 - Camp Pendleton SMR (Current)
134-0413-0203	E Street, Jefferson Avenue	-	Building 100 - Camp Pendleton SMR (Historic/Current)
134-0413-0114	Lake Road, South Birdneck Road	-	Boathouse Associated with Building 94 (Descriptive), Building 91 - Camp Pendleton SMR (Current)
134-0413-0115	Lake Road and Jefferson Avenue	-	Dock Associated with Building 94 (Descriptive), Structure 91a - Camp Pendleton SMR (Current)
134-0413-0036	Jefferson Avenue, Lake Road	-	Adjutant General Cottage (Historic), Building 94 - Camp Pendleton SMR (Current), Post Superintendent Residence (Historic)
134-0413-0034	Jefferson Avenue	-	Building 33 - Camp Pendleton SMR (Historic), Building 93 - Camp Pendleton SMR (Historic), Building 92 - Camp Pendleton SMR (Current)
134-0413-0138	B Street	-	Building 230 - Camp Pendleton SMR (Current)
134-0413-0042	1st Street, B Street, C Street, South Birdneck Road	-	Building 233 - Camp Pendleton SMR (Current), Building T-233 - Camp Pendleton SMR (Historic)
134-0413-0041	1st Street, B Street, South Birdneck Road	-	Building 232 - Camp Pendleton SMR (Current), Building T-232 - Camp Pendleton SMR (Historic)
134-0413-0040	1st Street, B Street, South Birdneck Road	-	Building 231 - Camp Pendleton SMR (Current), Building T-231 - Camp Pendleton SMR (Historic)
134-0413-0105	South Birdneck Road	-	Building 442 - Camp Pendleton SMR (Current)
134-0413-0163	C Street, Jefferson Avenue, Rifle Range Road	-	Drill Field at Jefferson Avenue - Camp Pendleton SMR (Function/Location)

134-0413-0137	South Birdneck Road	Unrestricted	Building 229 - Camp Pendleton SMR (Current), Building 442 - Camp Pendleton SMR (Historic)
134-0413-0177	C Street	-	Gate/Guard House Camp Pendleton SMR (Current)
134-0413-0142	2nd Street	-	Building 238 - Camp Pendleton SMR (Current), Building T-238 - Camp Pendleton SMR (Historic)
134-0413-0139	2nd Street	-	Building 231A - Camp Pendleton SMR (Current)
134-0413-0150	Seatack Road	-	Cantonment Road 265 - Camp Pendleton SMR (Current), Seatack Road (Historic/Current)
134-0413-0141	2nd Street	-	Building 237 - Camp Pendleton SMR (Current), Building T-237 - Camp Pendleton SMR (Historic)
134-0413-0140	1st Street, B Street	-	Building 236 - Camp Pendleton SMR (Current), Building T-236 - Camp Pendleton SMR (Historic)
134-0413-0045	C Street	-	Building 243 - Camp Pendleton SMR (Current), Building T-243 - Camp Pendleton SMR (Historic)
134-0413-0044	B Street	-	Building 242 - Camp Pendleton SMR (Current), Building T-242 - Camp Pendleton SMR (Historic)
134-0413-0184	1st Street	-	Gazebo-Camp Pendleton SMR (Function/Location)
134-0413-0043	3rd Street, B Street	-	Building 241 - Camp Pendleton SMR (Current), Building T-241 - Camp Pendleton SMR (Historic)
134-0413-0144	B Street, C Street	-	Building 248 - Camp Pendleton SMR (Current), Building T-248 - Camp Pendleton SMR (Historic)

134-0413-0143	3rd Street, B Street, C Street	-	Building 247 - Camp Pendleton SMR (Current), Building T-247 - Camp Pendleton SMR (Historic)
134-0413-0183	1st Street	-	Gazebo-Camp Pendleton SMR (Function/Location)
134-0413-0046	3rd Street, B Street	-	Building 246 - Camp Pendleton SMR (Current), Building T-246 - Camp Pendleton SMR (Historic)
134-0413-0199	C Street	-	Cadets Memorial Garden- Camp Pendleton SMR (Current)
134-0413-0146	B Street, C Street	-	Building 253 - Camp Pendleton SMR (Current), Building T-253 - Camp Pendleton SMR (Historic)
134-0413-0145	B Street, C Street	-	Building 252 - Camp Pendleton SMR (Current), Building T-252 - Camp Pendleton SMR (Historic)
134-0413-0047	3rd Street, South Birdneck Road	-	Building 251- Camp Pendleton SMR (Current), Building T-251 - Camp Pendleton SMR (Historic)
134-0413-0164	1st Street, 7th Street, A Street, B Street	-	Field between A and B Streets - Camp Pendleton SMR (Function/Location), Regimental Camp Area #2 (Descriptive)
134-0413-0111	Jefferson Avenue, South Birdneck Road	-	Structure 80 - Camp Pendleton SMR (Current), Structure T-80 - Camp Pendleton SMR (Historic)
134-0413-0033	Lake Road	-	Building 90 - Camp Pendleton SMR (Descriptive), Commandant's House (Historic), Governor's Cottage (Historic/Current)
134-0413-0009	C Street	-	Building 51 - Camp Pendleton SMR (Current)
134-0413-0007	B Street	-	Building 34 - Camp Pendleton SMR (Current)

134-0413-0198	Lake Road	-	Building 90 Shed - Camp Pendleton SMR (Current), Governor's Cottage Shed (Descriptive)
134-0413-0008	B Street	-	Building 35 - Camp Pendleton SMR (Current)
134-0413-0204	B Street	-	Building 36 - Camp Pendleton SMR (Historic/Current), Camp Pendleton Laundry (Function/Location)
134-0413-0052	C Street	-	Building 329 - Camp Pendleton SMR (Current), Building T-329 - Camp Pendleton SMR (Historic)
134-0413	501 General Booth Boulevard	Unrestricted	Camp Pendleton-National Guard Training Site (Historic), Camp Pendleton/State Military Reservation (Current Name), Camp Pendleton/State Military Reservation Historic District (NRHP Listing)
134-0413-0149	Jefferson Avenue	-	Cantonment Road 264 - Camp Pendleton SMR (Current), Jefferson Avenue (Historic/Current)
134-0413-0037	Lake Road	-	Building 99 - Camp Pendleton SMR (Current), Building T-95 - Camp Pendleton SMR (Historic)
134-0413-0130	Jefferson Avenue, Lake Road	-	Picnic Area (Descriptive), Site 119 - Camp Pendleton SMR (Current)
134-0413-0206	Lake Road	-	Dock 99A - Camp Pendleton SMR (Function/Location)
134-0413-0122	Lake Road	-	Building 110b - Camp Pendleton SMR (Current)
134-0413-0035	Birdneck Road	-	Bldg #32 State Military Reservation, Camp Pendleton (Historic), Bldg #92 State Military Reservation, Camp Pendleton (Historic), Horse Barn, Bldg #93 State Military Reservation, Camp Pendleton (Function/Location)

134-0413-0117	Lake Road and Jefferson Avenue	-	Building 94a - Camp Pendleton SMR (Current), Guest House #1 (Descriptive)
134-0413-0123	Lake Road	-	Structure 110c - Camp Pendleton SMR (Current)
134-0413-0121	Lake Road	-	Building 110a - Camp Pendleton SMR (Current)
134-0413-0116	Lake Road and Jefferson Avenue	-	Building 94b - Camp Pendleton SMR (Current), Guest House #2 (Descriptive)
134-0413-0188	Lake Road and Jefferson Avenue	-	Building 94c - Camp Pendleton SMR (Current)
134-0413-0038	Lake Road	-	Adj. General Residence (Current), Building 110 - Camp Pendleton SMR (Current), Building T-110 - Camp Pendleton SMR (Historic)
134-0413-0124	Lake Road	-	Structure 110d - Camp Pendleton SMR (Current)
134-0413-0189	Lake Road and Jefferson Avenue	-	Building 94d Shed - Camp Pendleton SMR (Current)
134-0413-0160	General Booth Boulevard, Regulus Avenue, South Birdneck Road	-	Beachfront Range - Camp Pendleton SMR (Current)
134-0413-0039	Regulus Avenue	-	Building 113 - Camp Pendleton SMR (Current), Building 99 - Camp Pendleton SMR (Historic)
134-0413-0125	Regulus Road	-	Building 114 - Camp Pendleton SMR (Current)
134-0413-0127	Regulus Road	-	Building 116 - Camp Pendleton SMR (Current)

134-0413-0126	Regulus Road	-	Building 115 - Camp Pendleton SMR (Current)
134-0413-0218	Regulus Road	-	Building 114a - Camp Pendleton SMR (Current)
134-0413-0128	Regulus Road	-	Building 117 - Camp Pendleton SMR (Current)
134-0413-0132	Regulus Road	-	Structure 127 - Camp Pendleton SMR (Current)
134-0413-0129	Regulus Road	Unrestricted	Structure 118 - Camp Pendleton SMR (Current), Structure T-100 - Camp Pendleton SMR (Historic)
134-0413-0179	Regulus Road	-	Dog Agility Course- Camp Pendleton SMR (Current)
134-0413-0170	Rifle Range Road	-	Beach - Camp Pendleton SMR (Current)
134-0413-0168	Rifle Range Road	-	Observation Deck - Camp Pendleton SMR (Current)
134-0413-0167	501 General Booth Boulevard	-	Circulation System - Camp Pendleton SMR (Current)
134-0413-0155	Garage Road	Unrestricted	Building T-430 - Camp Pendleton SMR (Current)
134-0413-0156	Garage Road	Unrestricted	Camp Pendleton Water Tower (Descriptive), Structure 430c - Camp Pendleton SMR (Function/Location)
134-0413-0152	A Street	Unrestricted	Building 361 - Camp Pendleton SMR (Current), Building T-356 - Camp Pendleton SMR (Historic)

134-0413-0095	South Birdneck Road	Unrestricted	Building 418, Camp Pendleton SMR (Current)
134-0413-0097	Warehouse Road	Unrestricted	Building 424 - Camp Pendleton SMR (Current), Building T-424 - Camp Pendleton SMR (Historic)
134-0413-0161	Jefferson Avenue, Lake Road	-	Rifle Range, Jefferson Avenue and Lake Road - Camp Pendleton SMR (Function/Location)
134-0413-0171	D Street	-	Building Foundation-Camp Pendleton SMR (Current)
134-0413-0192	D Street	-	Buildings 206 - Camp Pendleton SMR (Current)
134-0413-0134	D Street	-	Building 209 - Camp Pendleton SMR (Current)
134-0413-0101	E Street	-	Building 432 - Camp Pendleton SMR (Current), Building T- 432 - Camp Pendleton SMR (Historic)
134-0413-0026	South Birdneck Road	Unrestricted	Building 79 - Camp Pendleton SMR (Current)
134-0413-0209	E Street	-	Building 432 Shed - Camp Pendleton SMR (Current), Building T- 432 Shed- Camp Pendleton SMR (Historic)
134-0413-0118	South Birdneck Road	-	Building 95 - Camp Pendleton SMR (Current)
134-0413-0119	E Street, Jefferson Avenue	-	Building 96 - Camp Pendleton SMR (Current)
134-0413-0216	9th & D Streets	-	Building 212 - Camp Pendleton SMR (Current)

134-0413-0120	E Street, Jefferson Avenue	-	Building 97 - Camp Pendleton SMR (Current)
134-0413-0200	E Street, Jefferson Avenue	-	Building 98 - Camp Pendleton SMR (Current)
134-0413-0215	9th & D Streets	-	Building 216 - Camp Pendleton SMR (Current)
134-0413-0181	9th Street	-	Quonset Hut, Red Horse Complex - Camp Pendleton SMR (Current)
134-0413-0136	9th Street	-	Building 211 - Camp Pendleton SMR (Current)
134-0413-0202	E Street, Jefferson Avenue	-	Building 102 - Camp Pendleton SMR (Current)
134-0413-0193	D Street	-	Buildings 207 - Camp Pendleton SMR (Current)
134-0413-0135	D Street	-	Building 210 - Camp Pendleton SMR (Current)
134-0413-0182	9th Street	-	Quonset Hut, Red Horse Complex - Camp Pendleton SMR (Current)
134-0413-0194	9th Street	-	Building 208 - Camp Pendleton SMR (Current)
134-0413-0195	9th & D Streets	-	Building 214 - Camp Pendleton SMR (Current)
134-0413-0100	Headquarters Road, Warehouse Road	-	Building 428 - Camp Pendleton SMR (Current), Building T- 428 - Camp Pendleton SMR (Historic)

134-0413-0002	Headquarters Road, Warehouse Road	-	Building 3 - Camp Pendleton SMR (Current)
134-0413-0001	Headquarters Road, Warehouse Road	-	Building 2 -Camp Pendleton SMR (Current)
134-0413-0110	Headquarters Road, Warehouse Road	-	Building 1 - Camp Pendleton SMR (Current)
134-0413-0174	Headquarters Road	-	Structure 423 - Camp Pendleton SMR (Current)
134-0413-0096	Headquarters Road, Warehouse Road	-	Building 421 - Camp Pendleton SMR (Current), Building T-421 - Camp Pendleton SMR (Historic)
134-0413-0104	Headquarters Road, Warehouse Road	-	Building 441 - Camp Pendleton SMR (Current), Building T- 441 - Camp Pendleton SMR (Historic)
134-0413-0217	Headquarters Road	-	Building 217 - Camp Pendleton SMR (Current)
134-0413-0154	South Birdneck Road	-	Building 422 - Camp Pendleton SMR (Current), Building T-422 - Camp Pendleton SMR (Historic)
134-0413-0159	1096 South Birdneck Road	Unrestricted	Major General William Sands Armory (Current), Virginia Beach Armory (Current), Virginia Beach Readiness Center (Current)
134-0413-0148	Garage Road	-	Building 261 - Camp Pendleton SMR (Current)
134-0413-0048	Garage Road	-	Building 262 - Camp Pendleton SMR (Current), Building T-262 - Camp Pendleton SMR (Historic)
134-0413-0049	Garage Road, South Birdneck Road	-	Building 263 - Camp Pendleton SMR (Current), Building T-263 - Camp Pendleton SMR (Historic)

134-0413-0080	Garage Road	-	Building 360 - Camp Pendleton SMR (Current), Building T-360 - Camp Pendleton SMR (Historic)
134-0413-0172	Garage Road	-	Building Foundation and Flue-Camp Pendleton SMR (Descriptive)
134-0413-0081	Garage Road	-	Building 362 - Camp Pendleton SMR (Current), Building T-362 - Camp Pendleton SMR (Historic)
134-0413-0212	4th Street	-	Building 260D - Camp Pendleton SMR (Current)
134-0413-0147	A Street, Garage Road	-	Building 260 - Camp Pendleton SMR (Current)
134-0413-0214	A Street	-	Building 260 - Camp Pendleton SMR (Current)
134-0413-0208	A Street	-	Building 260B-C (Function/Location)
134-0413-0173	4th Street, Garage Road	-	Structure 361-Camp Pendleton SMR (Historic)
134-0413-0082	A Street, South Birdneck Road	-	Building 403 - Camp Pendleton SMR (Current)
134-0413-0211	4th Street	-	Building 360A - Camp Pendleton SMR (Current)
134-0413-0078	A Street	-	Building 358 - Camp Pendleton SMR (Current), Building T-358 - Camp Pendleton SMR (Historic)
134-0413-0079	A Street	-	Building 359 - Camp Pendleton SMR (Current), Building T-359 - Camp Pendleton SMR (Historic)

134-0413-0175	A Street	-	A Street Marker- Camp Pendleton SMR (Current), Rose Marker (Descriptive)

2. A search of the data supplied by the U.S. Fish & Wildlife Service, the Virginia Department of Conservation and Recreation and the Virginia Department of Game and Inland Fisheries revealed the following:

   ☐ No known populations of threatened or endangered species are located on or within the vicinity of the subject property.

   ☒ The following federally-listed species may occur within the vicinity of the subject property: Northern Long Eared Bat

   ☐ The following state-listed (or other) species may occur within the vicinity of the subject property:

Please note this information is being provided to you based on the preliminary data you submitted to the Corps relative to project boundaries and project plans. Consequently, these findings and recommendations are subject to change if the project scope changes or new information becomes available and the accuracy of the data.

CVOW – NAVY NAS Oceana Property

TETRA TECH

July 15, 2022

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Subject: [Supplemental Filing] Request for Preliminary Jurisdictional Determination, Naval Air Station Oceana
Start: 75.9872630°W 36.8181763°N
End: 76.0231289°W 36.7958193°N

To Whom It May Concern,

Tetra Tech, Inc. (Tetra Tech) has been retained by Virginia Electric and Power Company, doing business as Dominion Energy Virginia (Dominion Energy) to conduct a field investigation/verification of wetlands and waters of the U.S. (WOTUS) on the Coastal Virginia Offshore Wind Project (Project). Dominion Energy is conducting an evaluation of the Project area between the Cable Landing Location in the City of Virginia Beach and the final connection point, Fentress Substation, in the City of Chesapeake. The investigation described herein and the commensurate Preliminary Jurisdictional Determination (PJD), have been split into three components that include the following: 1) State Military Reservation (SMR) and Naval Air Station (NAS) Oceana – Dam Neck Annex (covered by NAO-2018-0436), 2) NAS Oceana property that is not currently covered by a PJD, and 3) the linear routing from NAS Oceana to Fentress Substation (Harpers to Fentress). This report highlights the findings of the investigation associated with NAS Oceana and surrounding properties owned by the Navy within the Project area (Component 2).

The approximate 97.77-acre study area is located within the Mid Atlantic Coastal and Albemarle-Chowan drainage basins in Virginia Beach, Virginia. Features were identified and delineated using the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain (Version 2.0)*. Where appropriate, aquatic resources were mapped via flagging and located with sub-meter GPS receivers. The data sheets/photolog used in this determination are attached along with the delineation mapbook showing the mapped aquatic resources and corresponding datapoints.

On behalf of Dominion Energy, Tetra Tech is submitting this information to the U.S. Army Corps of Engineers (USACE) for their review and approval for issuance of a PJD. To assist the entities involved with the review and approval of this delineation, please find enclosed the PJD Request Form (Appendix A), Wetland Delineation Report Site Summary (Appendix B), Figures and Mapbook (Appendix C), Data Sheets and Photolog (Appendix D), and Previous Delineation Report(s) (Appendix E). Upon review, Tetra Tech staff would be pleased to meet with USACE onsite to review the information provided, as necessary. Please contact James Cook for any requests related to this matter.

Respectfully submitted,



Tetra Tech, Inc.
4433 Corporation Lane, Suite 300. Virginia Beach, VA
Tel 540-841-4752 Fax 757-461-4148 tetratech.com

James Cook, PWS
Environmental Scientist
Email: james.cook@tetratech.com

Enclosure

CC Rachel Studebaker – Dominion Energy
Janelle Lavallee – Tetra Tech
Nathalie Schils – Tetra Tech

Appendices:

- Appendix A: Preliminary Jurisdictional Determination Request Form
- Appendix B: Wetland Delineation Report Site Summary
- Appendix C: Figures and Mapbook
  - Figure 1: Overall Site Map (USGS Topo)
  - Figure 2: Delineation Mapbook
  - Figure 3: NWI Mapbook
- Appendix D: Data Sheets and Photolog
- Appendix E. Previous Delineation Report(s)

Tetra Tech, Inc.
4433 Corporation Lane, Suite 300. Virginia Beach, VA
Tel 540-841-4752 Fax 757-461-4148 tetratech.com

APPENDIX A: PRELIMINARY JURISDICTIONAL DETERMINATION REQUEST FORM

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: July 15, 2022
2. Project Name: CVOW - NAVY NAS Oceana Property
3. City or County where property located: City of Virginia Beach
4. Address of property and directions (attach a map of the property location and a copy of the property plat): The site is situated south of Bells Road, west of South Birdneck Road, east of Oceana Boulevard, and north of Harpers Road.
5. Coordinates of property (if known): Start: 75.9872630°W 36.8181763°N End: 76.0231289°W 36.7958193°N
6. Size of property in acres: 97.77
7. Tax Parcel Number / GPIN (if available):
8. Name of Nearest Waterway: Owl Creek

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:
   Environmental Constraints Analysis

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☒ YES ☐ NO ☐ UNKNOWN

    If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available: ERM - approved by Brian Denson NAO-2008-2946 and NAO-2021-01006 (AJD)

Property Owner Contact Information:

Property Owner Name: CAPT. Robert Holmes, Commanding Officer (Blake Waller - EV Director)
Mailing Address: 1750 Tomcat Blvd
City: State: Zip: Virginia Beach, VA 23460
Daytime Telephone: 757-433-3437
E-mail Address: blake.e.waller.civ@us.navy.mil

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Kevin Fields - Virginia Electric and Power Company
Mailing Address: 10900 Nuckols Road, 4th Floor
City: State: Zip: Glen Allen, Virginia 23060
Daytime Telephone: 804-771-3769
E-mail Address: ET.Environmental@dominionenergy.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

HOLMES.ROBERT.LAWRENCE.1008089635 Digitally signed by HOLMES.ROBERT.LAWRENCE.1008089635 Date: 2022.07.15 13:51:44 -04'00'

Property Owner's Signature

220715

Date

Revised: November 2013

APPENDIX B: WETLAND DELINEATION REPORT SITE SUMMARY

Wetland Delineation Report Site Information Summary
Coastal Virginia Offshore Wind Commercial Project
Naval Air Station Oceana Site Delineation
1750 Tomcat Blvd
Multiple Parcels (97.77 Acres)
Virginia Beach, Virginia

Date
July 15, 2022

Latitude/ Longitude in Decimal Degrees using coordinate plane (NAD 1983)
Start: 75.9872630°W 36.8181763°N
End: 76.0231289°W 36.7958193°N

Has a previous delineation or JD been performed? If so, please provide USACE Project Number: NAO-2021 – 01006 (AJD), NAO-2008-2946 (PJD)

Hydrologic Unit Code (HUC)
02040304 – Eastern Lower Delmarva and 03010205 – Albemarle

USGS Topographic Sheet
Virginia Beach Quadrangle, 2019 (7.5-Minute Series) and Princess Anne Quadrangle, 2019 (7.5 Minute Series)

Nearest Waterbody (example given)
Owl Creek is adjacent to the eastern most point (start coordinates as indicated above) of the project area within Navy Property.

Delineation Methods
Features were identified and delineated using the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain (Version 2.0)*. The 2021 National Wetland Plant List was used for this delineation.

On-Site Investigation Date
Wetland boundary delineation and site data collection was conducted between early 2021 and 2022.

Wetland Delineation Plan
The proposed wetland boundaries and data sampling point locations are depicted on the plan entitled Figure 2. Coastal Virginia Offshore Wind Project, Delineation Mapbook (Appendix C): US NAVY PJD, prepared by Tetra Tech Offshore Wind Group on 07/07/2022.

Wetland Investigation Results

Wetlands: A total of approximately 5.35 acres of wetlands were found within the 97.77-acre project area during the investigation. Of the total proposed wetland area, approximately 5.00 acres are palustrine forested (PFO) wetlands, 0.32 acres are palustrine emergent (PEM) wetlands, and 0.03 acres are estuarine tidal wetlands (E2EM). Representative datasheets can be found in Appendix D and Appendix E.

Stream Channels: Two (2) streams were mapped as part of this delineation; EF_S_2001, and Owl Creek (75.9873252°W 36.8181858°N). Due to lack of accessibility to Owl Creek, this feature was mapped aerially based on LIDAR and available imagery. Owl Creek is a component of the Lake Rudee inlet. The datasheet and photolog for EF_S_2001 are provided in Appendix D.

Other Waters: Twenty-five (25) ditches were mapped in the survey area. Based on professional judgment and an assessment of morphology, the ditches were determined to be ephemeral. Determination of jurisdictional status is subject to review of the USACE. Datasheets for all ditches are provided in Appendix D and Appendix E.

Water bodies onsite identified as Section 10: N/A

Uplands: Approximately 92.43 acres of the project area were classified as upland. Representative datasheets can be found in Appendix D and show general site characteristics for these upland areas. Additionally, the previous delineation report (Appendix E) includes previous upland points (and the corresponding datasheets) taken within agriculture fields (76.0045755°W 36.8146556°N).

100-Year Floodplains
As depicted on the Federal Emergency Management Agency's (FEMA) on-line Flood Insurance Rate Maps #5155310128G (1/16/2015), #5155310109G (1/16/2015), and 5155310117F (5/4/2009), the project area lies within Zone X, areas of minimal flood hazard; Zone AE, base flood elevation and 100-year floodplain; and Zone A, area within 100-year floodplain.

National Wetlands Inventory
The online National Wetland Inventory (Appendix C, Figure 3) identified wetlands throughout the project area, largely in association with the above-mentioned waterbodies/waterways and active drainage areas.

USDA Soil Survey
The on-line USDA Natural Resource Conservation Service Soil Survey – SSURGO (Appendix C, Figure 2) identifies the following soils within the project area:

Table 1. SSURGO NRCS Soil Survey – Soil Series within Project Area

Reference Number	Soil Series	Acreage
1	Acredale silt loam	8.39
2	Acredale-Urban land complex	40.66
7	Bojac fine sandy loam	3.31
8	Chapanoke silt loam	1.48

13	Dragston fine sandy loam	2.47
19	Munden fine sandy loam	5.00
24	Nimmo loam	3.71
25	Nimmo-Urban land complex	1.61
32	Rappahannock mucky peat, strongly saline	0.99
36	Tetotum Loam	0.92
38	Tomotley loam	0.36
39	Tomotley-Urban land complex	25.68
40	Udorthents, loamy	0.24
W	Water	0.39
43	Yeopim silt loam	2.57

Notes:
Portions of the project area are covered under a previous AJD that was approved in 2021 (Appendix E). However, in recognition of this AJD being approved under a previously rescinded WOTUS definition, we are seeking confirmation of the previous delineation as part of this request. All features mapped within the previous AJD (76.0045755°W 36.8146556°N) were previously considered non-jurisdictional. However, because this is being reviewed under a PJD request, ultimate authority for jurisdictional determination lies with the USACE.

Waters Table:
Table 2 provides a summary of all mapped wetlands within the project area at NAS Oceana. Summaries of the streams and ditches that were identified within the project area at NAS Oceana are provided in Table 3 and Table 4, respectively.

Table 2. Identified Wetlands within the Project Area

Wetland ID[1]	County	Latitude[2]	Longitude[2]	Cowardin Class[3]	HGM[4]	Water Type[5]	Size (Acres)[6]	Size (square feet)[6]	Open/Closed Boundary	Mapbook Page #
JD_W_015	Virginia Beach	36.818569	-75.988490	PFO	Lacustrine	RPWWD	0.6335	27,595.994	Open	2,3
JD_W_016	Virginia Beach	36.818569	-75.988490	PFO	Riverine	RPWWD	4.2473	185,011.270	Open	3,4
JD_W_019	Virginia Beach	36.819893	-75.990090	E2EM	Lacustrine	RPWWD	0.0280	1,220.193	Open	2
JC_W_101	Virginia Beach	36.817835	-75.986478	PEM	Slope	Isolate	0.0159	693.964	Open	9
JC_W_1001	Virginia Beach	36.819082	-76.000969	PFO	Slope	RPWWN	0.0244	1,064.502	Open	5
EF_W_2004	Virginia Beach	36.798670	-76.024371	PEM	Depressional	Isolate	0.0404	1,760.020	Closed	11
EF_W_2005	Virginia Beach	36.798670	-76.024371	PEM	Depressional	Isolate	0.0035	153.535	Closed	11
EF_W_2006	Virginia Beach	36.798180	-76.024467	PEM	Depressional	Isolate	0.2106	917.469	Closed	11
EF_W_2007	Virginia Beach	36.800994	-76.018425	PFO	Slope	RPWWN	0.0936	4,075.245	Closed	10
KH_W_004	Virginia Beach	36.798670	-76.024371	PEM	Depressional	Isolate	0.0471	2,050.823	Closed	11
SMR-W-025	This feature is located outside of the Navy owned property and is therefore not included in this submittal. Please refer to the SMR Site Delineation package for information regarding this feature.									1
JA_W_010	This feature is located outside of the Navy owned property and is therefore not included in this submittal. Please refer to the Harpers to Fentress Substation Delineation package for information regarding this feature.									12
JA_W_011	This feature is located outside of the Navy owned property and is therefore not included in this submittal. Please refer to the Harpers to Fentress Substation Delineation package for information regarding this feature.									12
JA_W_012	This feature is located outside of the Navy owned property and is therefore not included in this submittal. Please refer to the Harpers to Fentress Substation Delineation package for information regarding this feature.									12

Notes:

1. Wetlands with multiple contiguous Cowardin types (e.g., PEM and PFO) are considered a single wetland system and are counted as one wetland.
2. In decimal degrees. Coordinates show wetland test pit locations.
3. E2EM = Estuarine Emergent
   PEM = Palustrine Emergent
   PFO = Palustrine Forested
4. HGM = Hydrogeomorphic
5. RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs)
   RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs
   Isolate = Isolated (interstate or intrastate) waters, including isolated wetlands
6. Size of wetlands with open boundaries may be larger than shown in this table. Wetland size shown is area of the wetland delineated and is illustrated on the Delineation Mapbook.

Table 3. Identified Streams within the Project Area

Stream Reach ID	NHD Stream Name[2]	County	Latitude[3]	Longitude[3]	Flow Regime	Water Type[4]	Cowardin Class[5]	Flow Direction	Ordinary High Water Mark Width (feet)	Mapbook Page #
JC_S_001	UNT Lake Rudee	Virginia Beach	36.818225	-75.987355	Perennial	TNW	R1	Northeast	70.00	2
EF_S_2001	UNT West Neck Creek	Virginia Beach	36.800626	-76.019190	Perennial	RPW	R1	South	14.00	10, 11

Notes:
1. Streams with braided channels, streams that have different flow regimes (e.g., ephemeral and intermittent) within the surveyed reach, and NHD named streams with different field stream reach identification names are counted as single streams
2. From USGS NHD (2019); see References. For identified streams without an NHD name, the identified stream was given the name, "Unnamed Tributary (UNT)", of the first named receiving waterbody.
3. In decimal degrees
4. RPW = Relatively Permanent Waters
   TNW = Traditional Navigable Waters
5. From Cowardin et al. 1979. R1-Riverine, Tidal.

Table 4. Identified Ditches within the Project Area

Ditch ID	County	Latitude[1]	Longitude[1]	Flow Regime	Water Type[2]	Cowardin Class[3]	Flow Direction	Ordinary High Water Mark Width (feet)	Size (Acres)	Size (square feet)	Mapbook Page #
EF_D_2004	Virginia Beach	36.801009	-76.017002	Ephemeral	NRPW	R6	Southeast	3.00	0.008	330.156	10
ERM_D_noa001	Virginia Beach	36.813902	-76.003640	Ephemeral	NRPW	R6	East	0.00	0.004	179.866	6
ERM_D_noa002	Virginia Beach	36.816620	-76.005490	Ephemeral	NRPW	R6	No apparent flow direction	0.00	0.005	232.847	6
ERM_D_noa003	Virginia Beach	36.818240	-76.004110	Ephemeral	NRPW	R6	No apparent flow direction	0.00	0.005	199.305	6
JC_D_101	Virginia Beach	36.798325	-76.021536	Ephemeral	NRPW	R6	No apparent flow direction	1.00	0.006	269.408	11
JC_D_102	Virginia Beach	36.799045	-76.023659	Ephemeral	NRPW	R6	South	3.00	0.037	1,596.800	11,12
JC_D_103	Virginia Beach	36.797466	-76.022860	Ephemeral	NRPW	R6	South	5.00	0.059	2,554.623	11,12
JC_D_104	Virginia Beach	36.797264	-76.022722	Ephemeral	NRPW	R6	Southeast	3.00	0.008	357.304	12
JC_D_105	Virginia Beach	36.795758	-76.023069	Ephemeral	NRPW	R6	No apparent flow direction	5.00	0.033	1,421.603	12
JC_D_106	Virginia Beach	36.796512	-76.022153	Ephemeral	NRPW	R6	South	5.00	0.084	3,673.884	12

Ditch ID	County	Latitude[1]	Longitude[1]	Flow Regime	Water Type[2]	Cowardin Class[3]	Flow Direction	Ordinary High Water Mark Width (feet)	Size (Acres)	Size (square feet)	Mapbook Page #
JC_D_107	Virginia Beach	36.796592	-76.022016	Ephemeral	NRPW	R6	No apparent flow direction	1.00	0.034	1,489.263	12
JC_D_108	Virginia Beach	36.800064	-76.010513	Ephemeral	NRPW	R6	Southeast	0.00	0.002	101.698	9
JC_D_109	Virginia Beach	36.799884	-76.009494	Ephemeral	NRPW	R6	Southeast	0.00	0.054	2,364.341	9
JC_D_110	Virginia Beach	36.799572	-76.006738	Ephemeral	NRPW	R6	East	3.00	0.010	413.960	9
JC_D_111	Virginia Beach	36.799010	-76.005012	Ephemeral	NRPW	R6	East	0.00	0.014	615.016	9
JC_D_112	Virginia Beach	36.804161	-76.004638	Ephemeral	NRPW	R6	South	4.00	0.044	1,903.803	8
JC_D_113	Virginia Beach	36.803982	-76.004537	Ephemeral	NRPW	R6	East	1.00	0.003	151.085	8
JC_D_114	Virginia Beach	36.710764	-76.004528	Ephemeral	NRPW	R6	East	5.00	0.014	592.291	7
JC_D_115	Virginia Beach	36.819251	-76.000119	Ephemeral	NRPW	R6	East	0.50	0.010	455.332	5
JD_D_068	Virginia Beach	36.819459	-75.989499	Ephemeral	NRPW	R6	South	0.00	0.081	3,547.370	3
JD_D_069	Virginia Beach	36.820312	-75.997577	Ephemeral	NRPW	R6	West	0.00	0.040	1,760.040	4,5
JD_D_070	Virginia Beach	36.819557	-75.998978	Ephemeral	NRPW	R6	West	0.00	0.001	51.216	5
JD_D_071	Virginia Beach	36.818957	-76.000047	Ephemeral	NRPW	R6	North	0.00	0.001	32.753	5
JD_D_076	Virginia Beach	36.800432	-76.011106	Ephemeral	NRPW	R6	South	0.00	0.007	297.083	9
KH_D_001	Virginia Beach	36.801739	-76.026161	Ephemeral	NRPW	R6	Southwest	3.00	0.015	669.469	11
JA_D_004	This feature is located outside of the Navy owned property and is therefore not included in this submittal. Please refer to the Harpers to Fentress Substation Delineation package for information regarding this feature.										12

Notes:
1. In decimal degrees
2. NRPW = Non-Relatively Permanent Waters
3. From Cowardin et al. 1979. R6-Riverine, Ephemeral

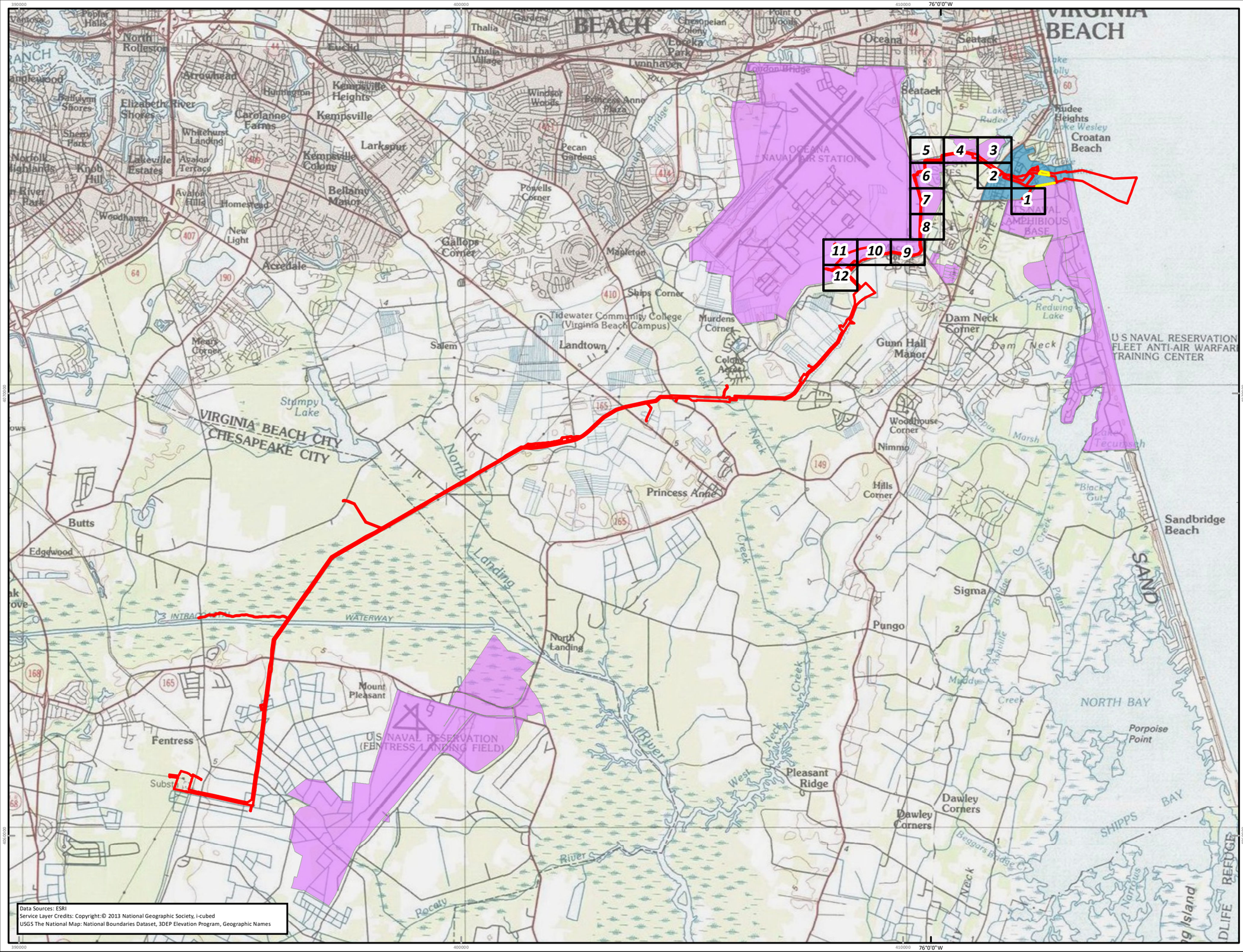
APPENDIX C: FIGURES AND MAPBOOK

Figure 1. Overall Site Map (USGS Topo)

Figure 2. Delineation Mapbook

Figure 3: National Wetlands Inventory Mapbook

FIGURE 1: OVERALL SITE MAP (USGS TOPO)



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: PJD

Dominion Energy

- Mapbook Page
- Former NAS Oceana South Virginia Beach Annex**
- Project LOD
- US Navy
- State Military Reservation

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD

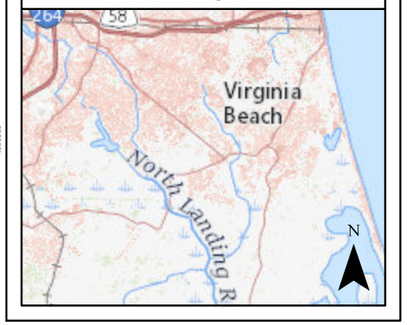
Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 0.5 1 1.5 2 Miles

0 0.5 1 1.5 Nautical Miles

0 1 2 3 Kilometers

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_USNavy_Mapbook_CoverSheet.mxd

FIGURE 2: DELINEATION MAPBOOK



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

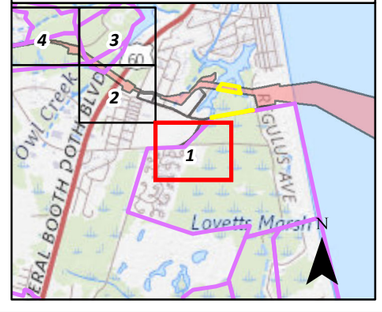
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

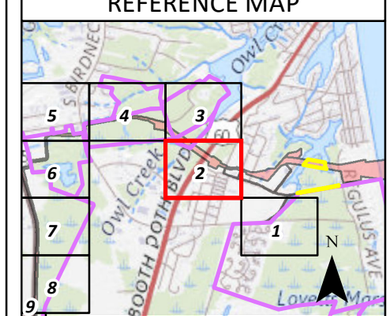
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

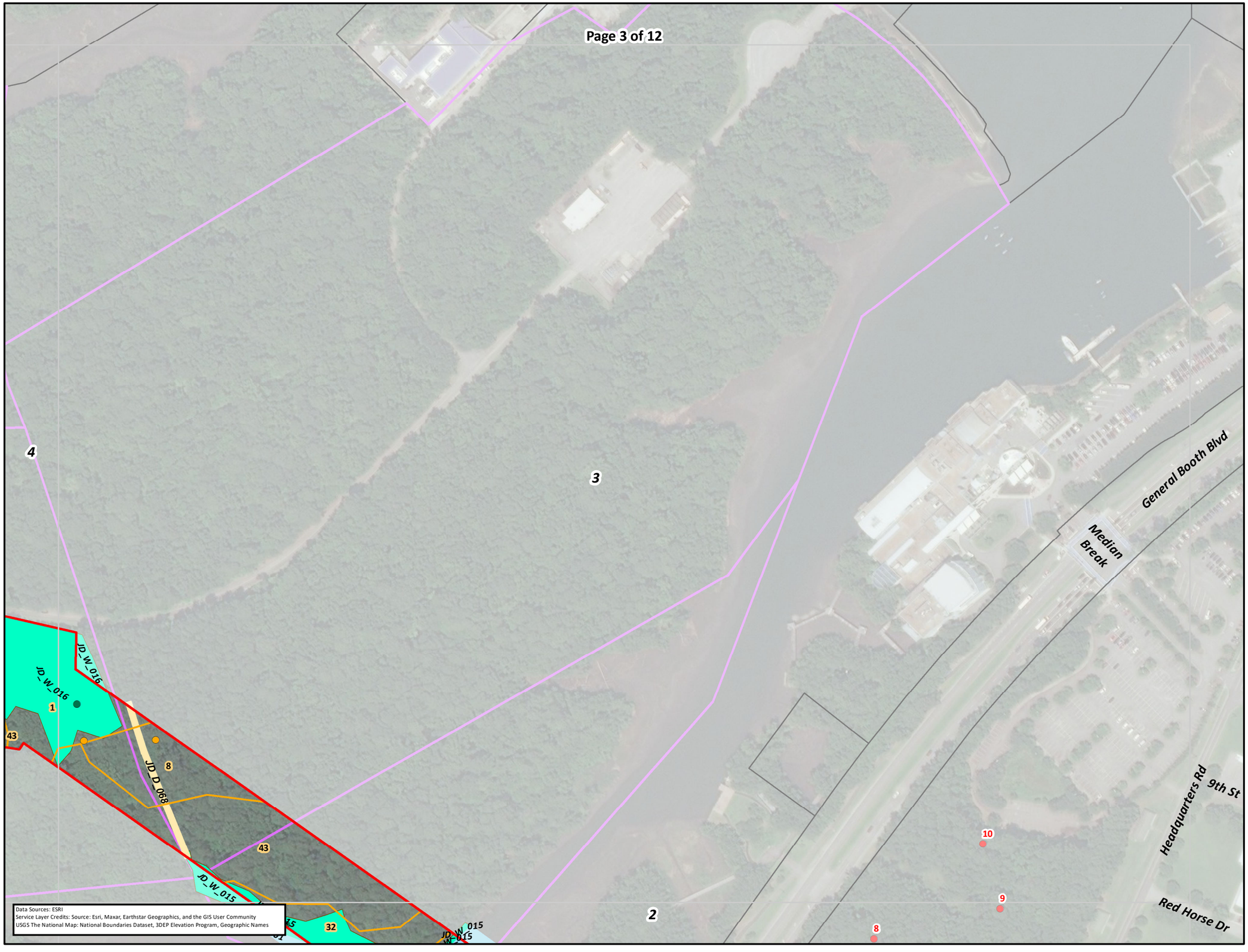
REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_USNavy_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

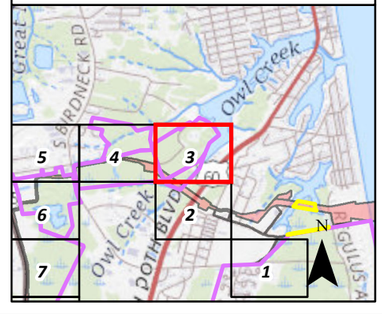
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

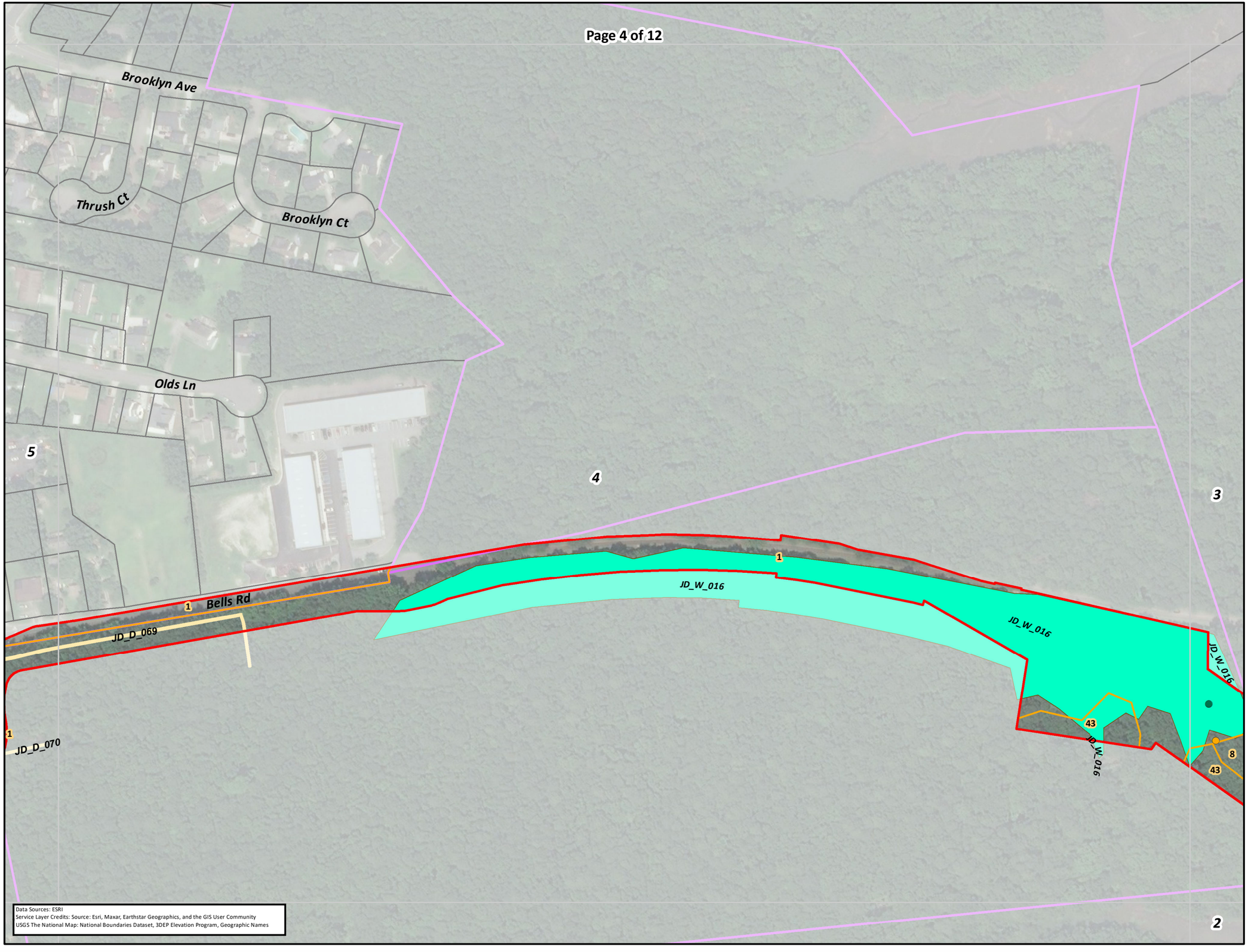
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

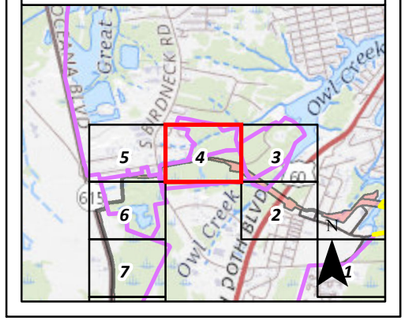
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

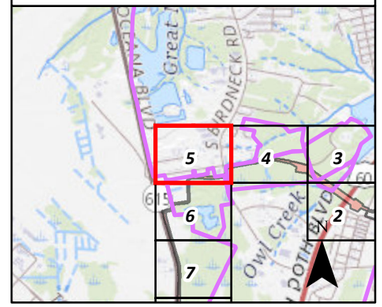
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

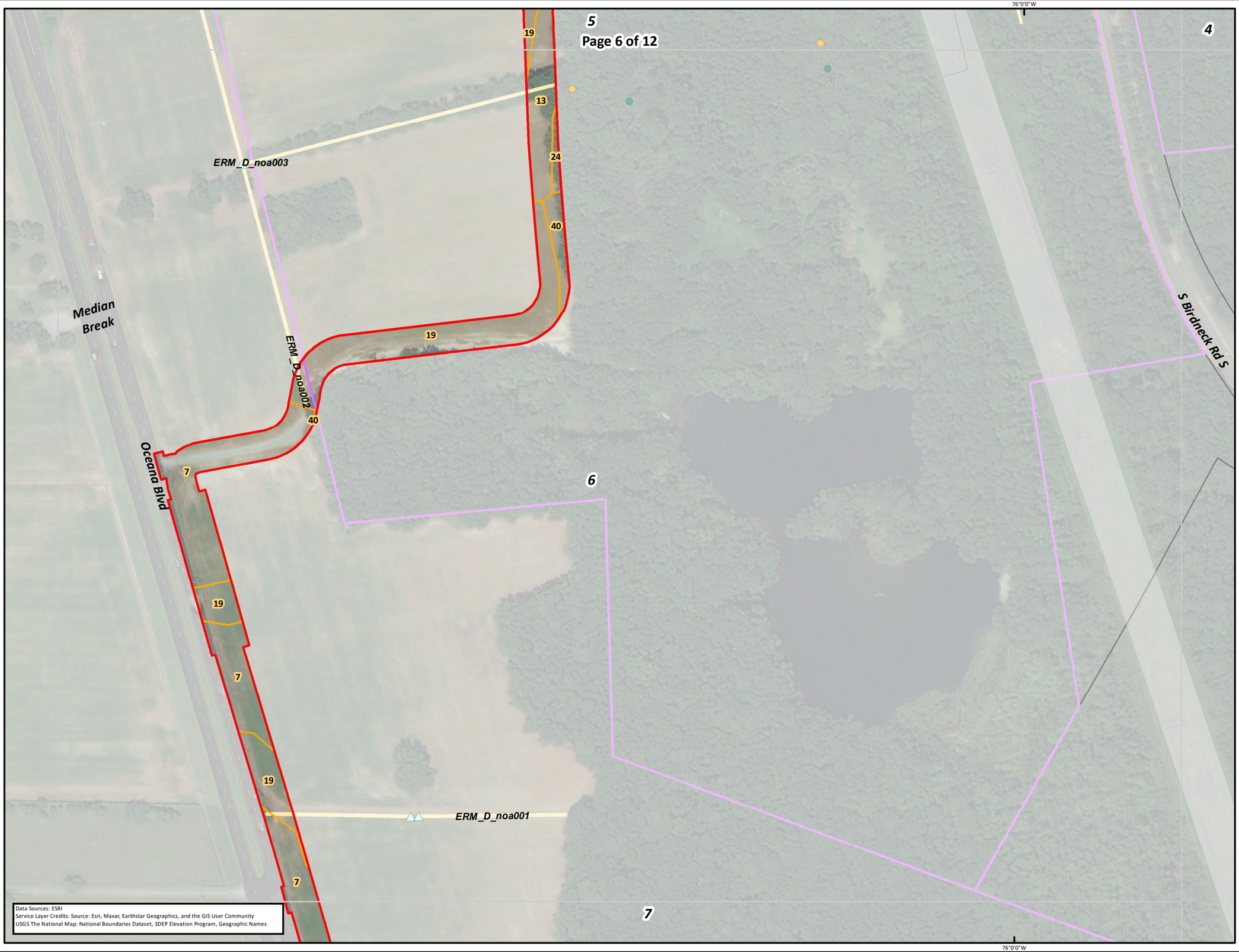
REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_USNavy_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

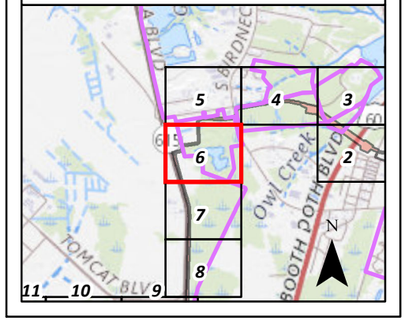
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

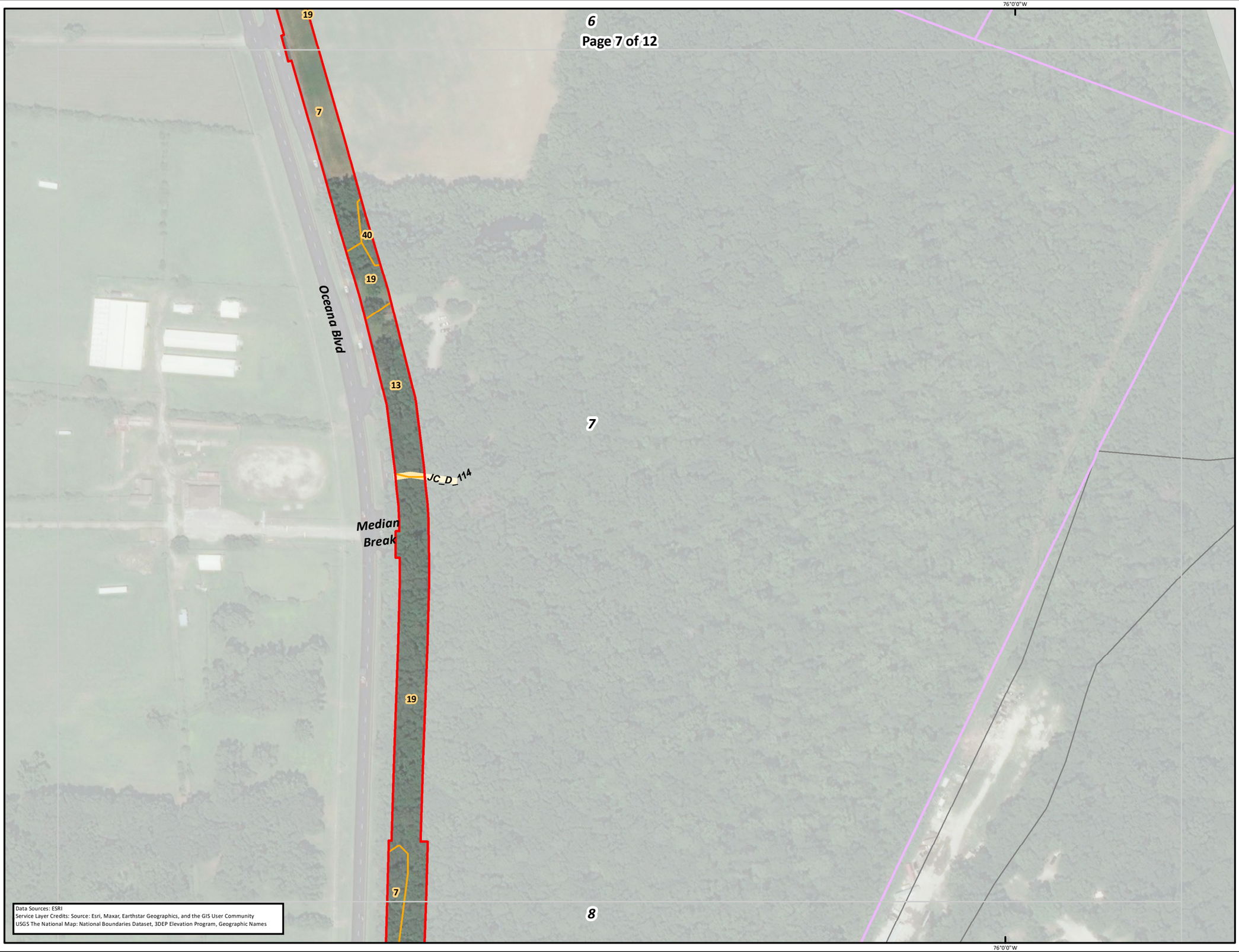
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

76°0'0"W



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

76°0'0"W

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

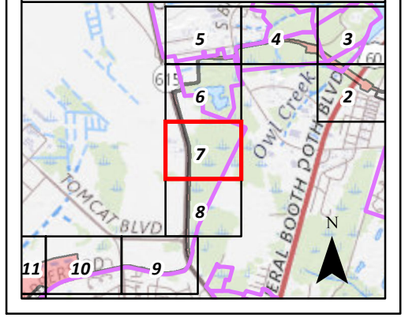
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_USNavy_Mapbook_Aerial.mxd

76°0'0"W

7

13

13

19

24

24

JC_D_112

JC_D_113

13

24

8

Oceana Blvd

Tomcat Blvd

Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

76°0'0"W

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

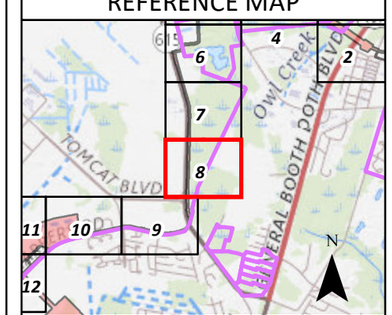
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

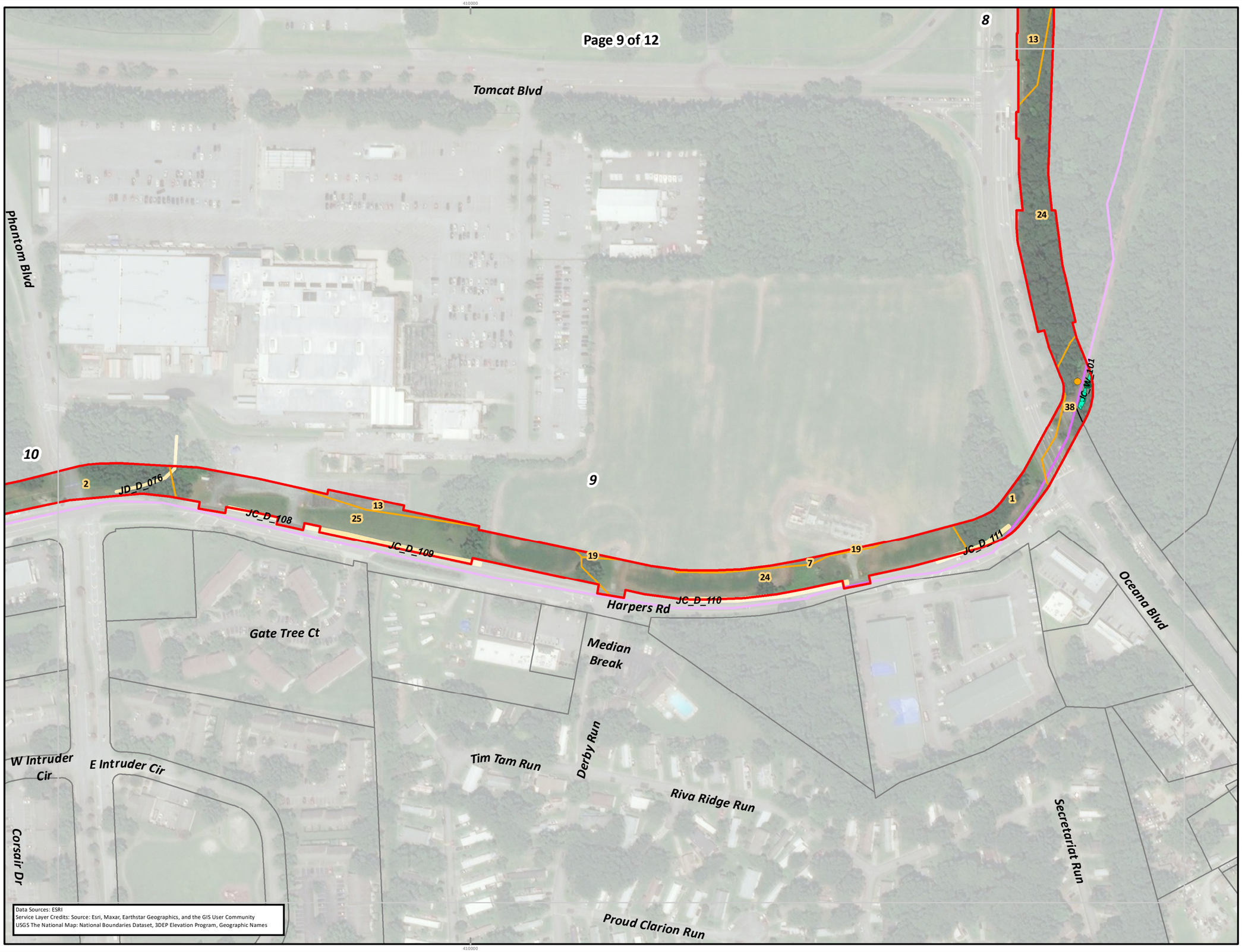
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

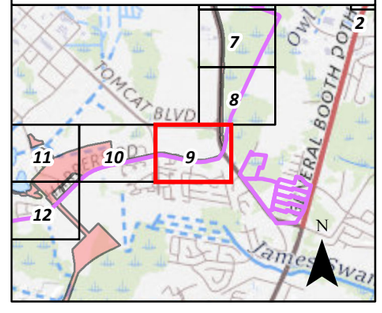
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

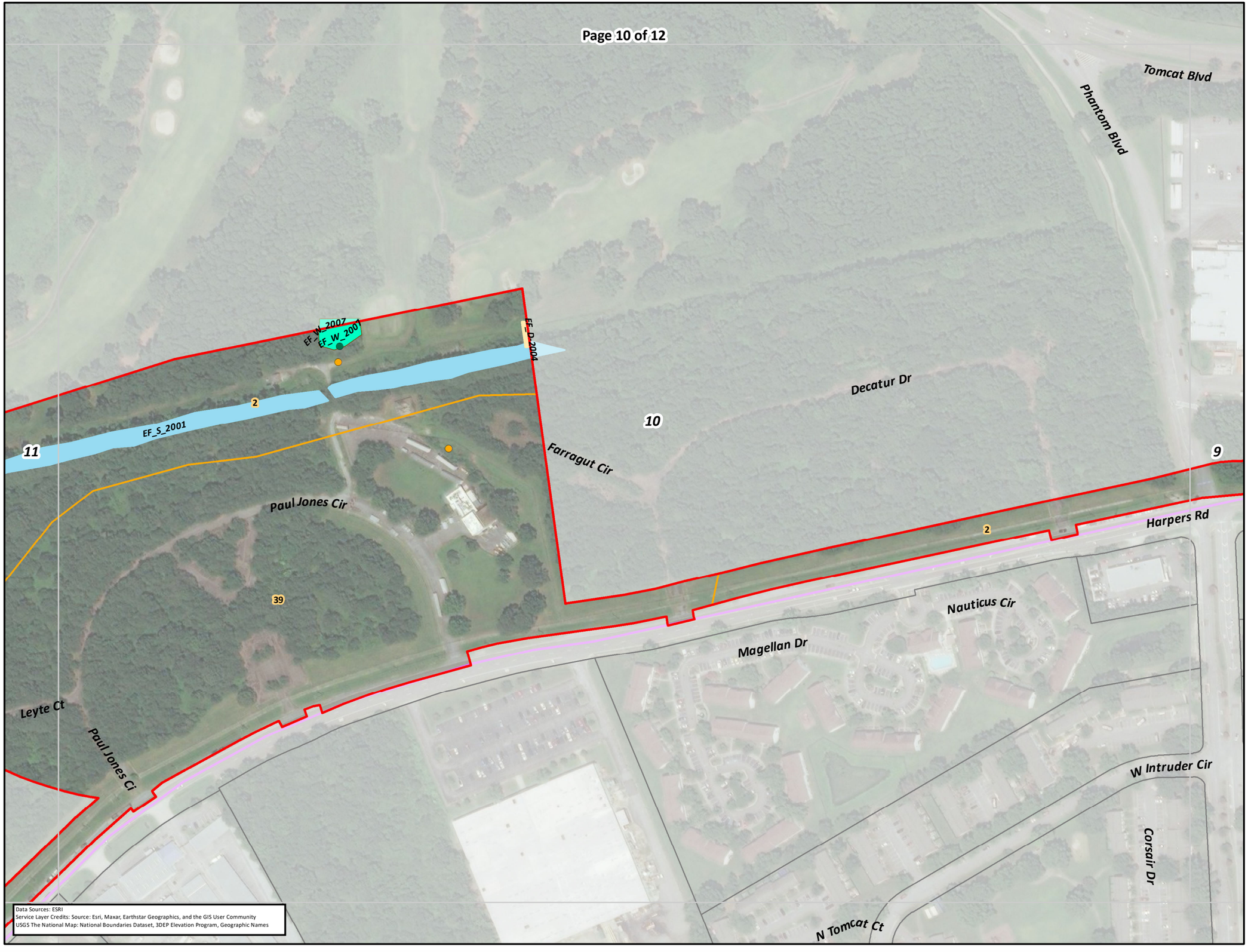
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

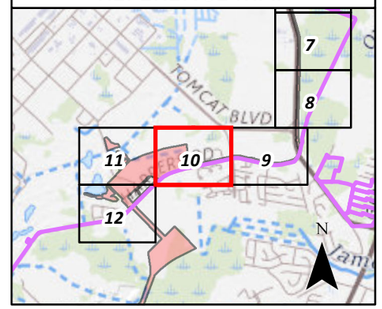
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

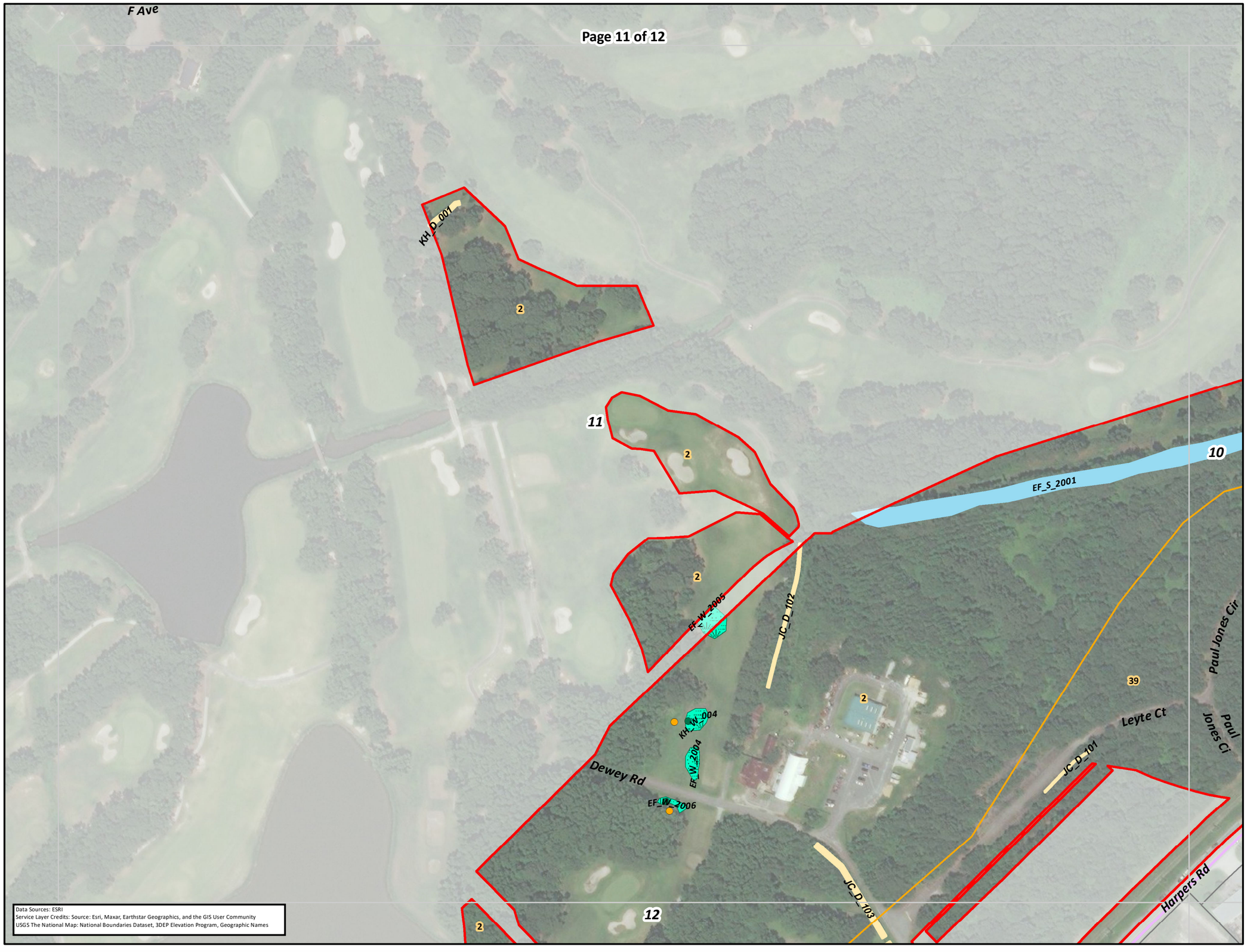
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

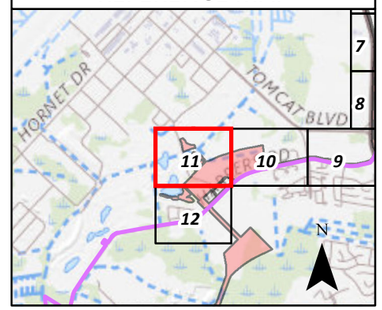
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- Former NAS Oceana South Virginia Beach Annex**
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

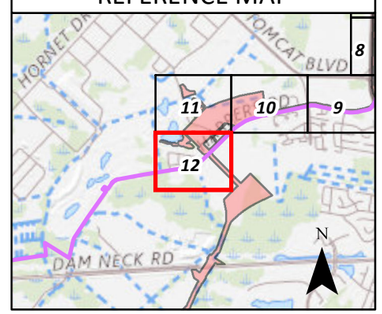
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

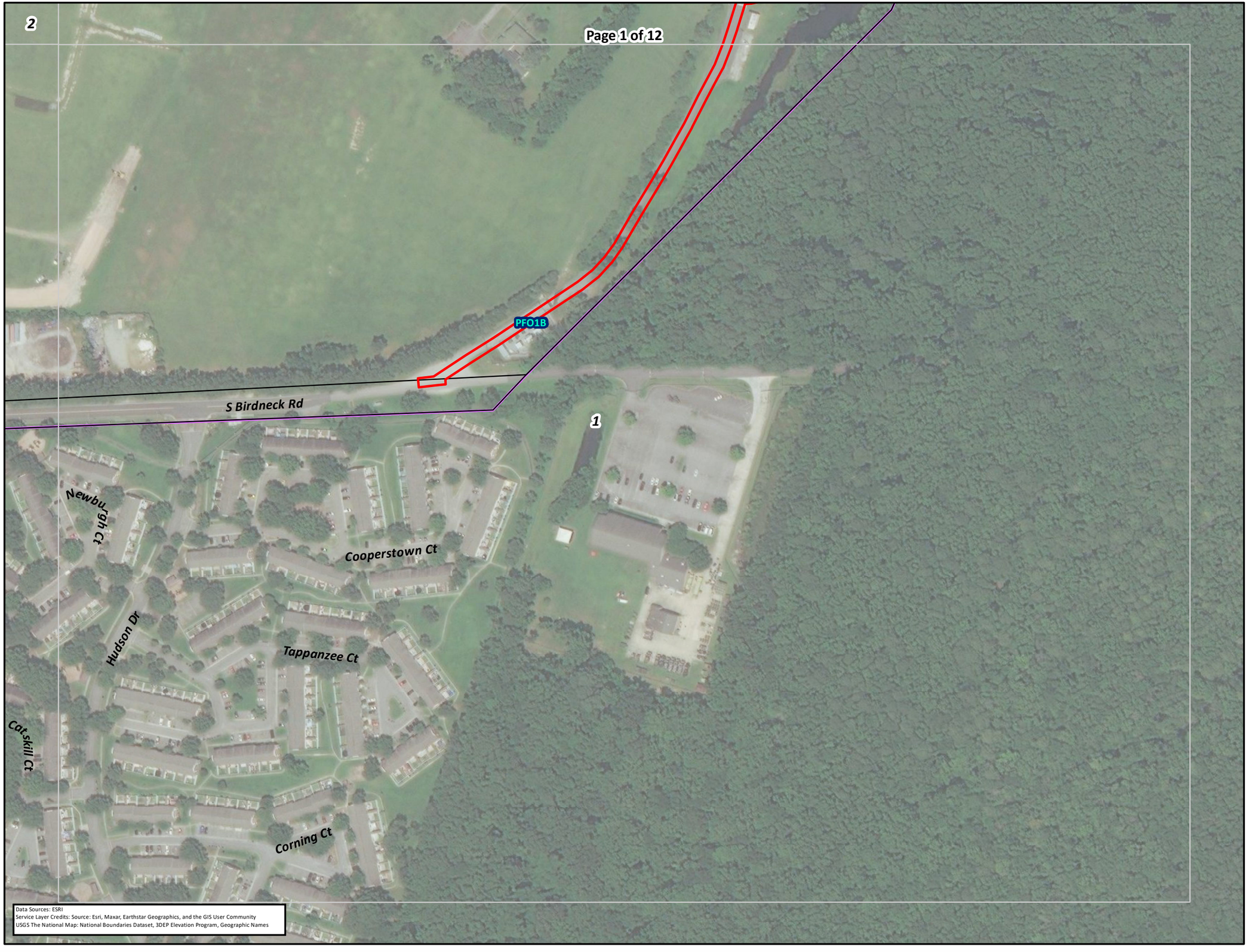
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

FIGURE 3: NATIONAL WETLANDS INVENTORY MAPBOOK



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy®

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

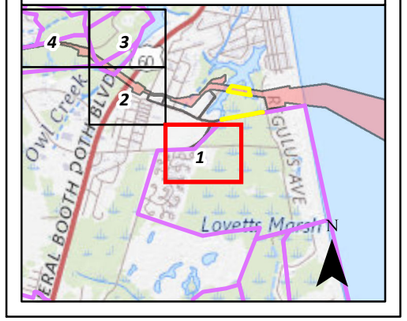
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

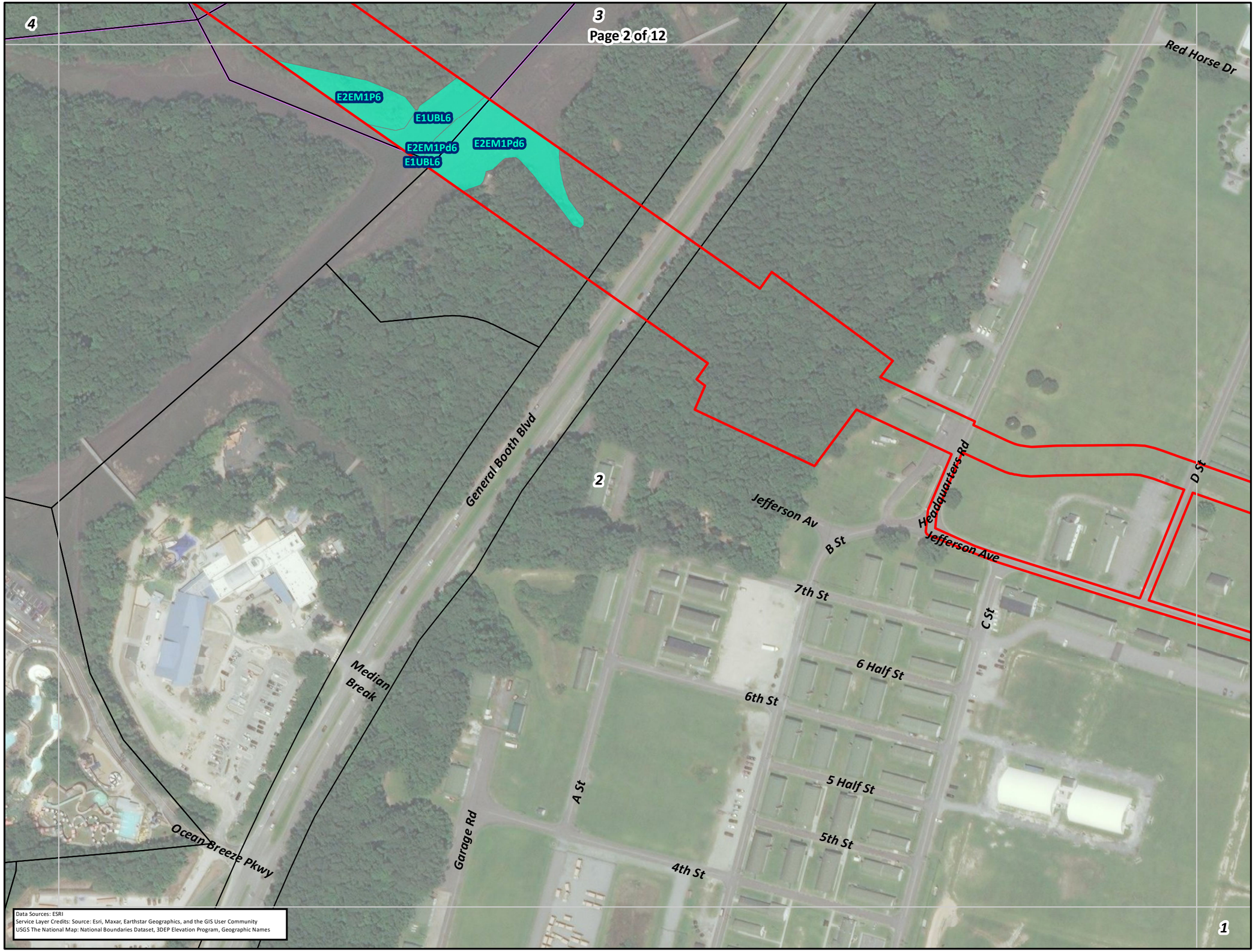
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_NWI_USNavy_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

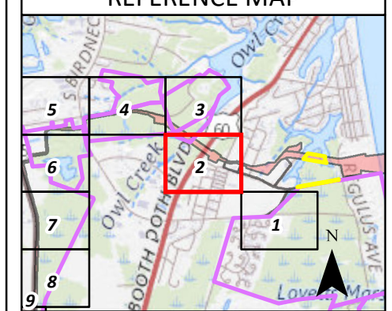
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

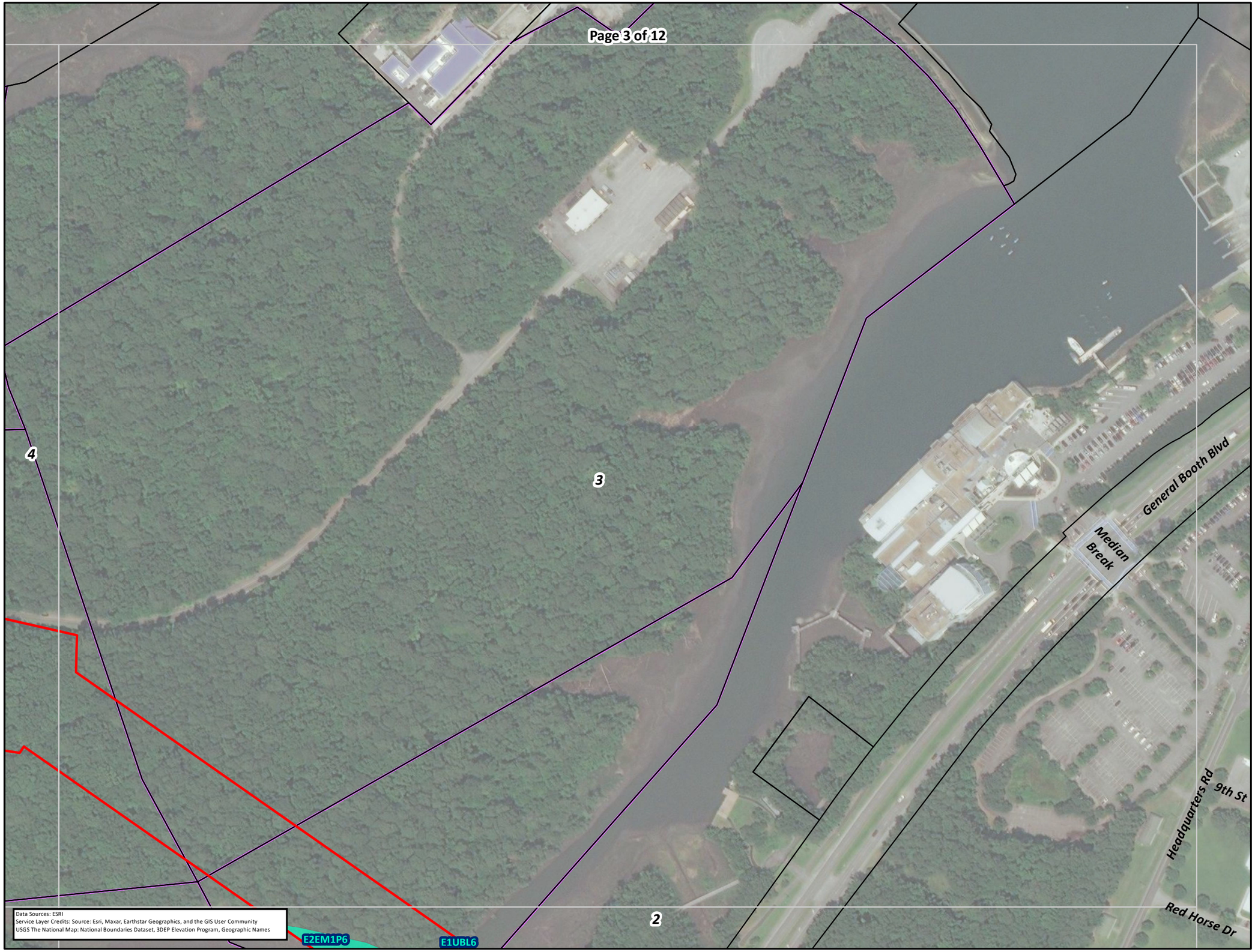
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

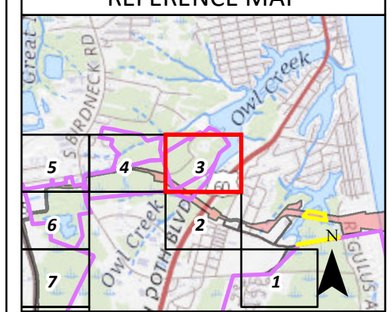
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

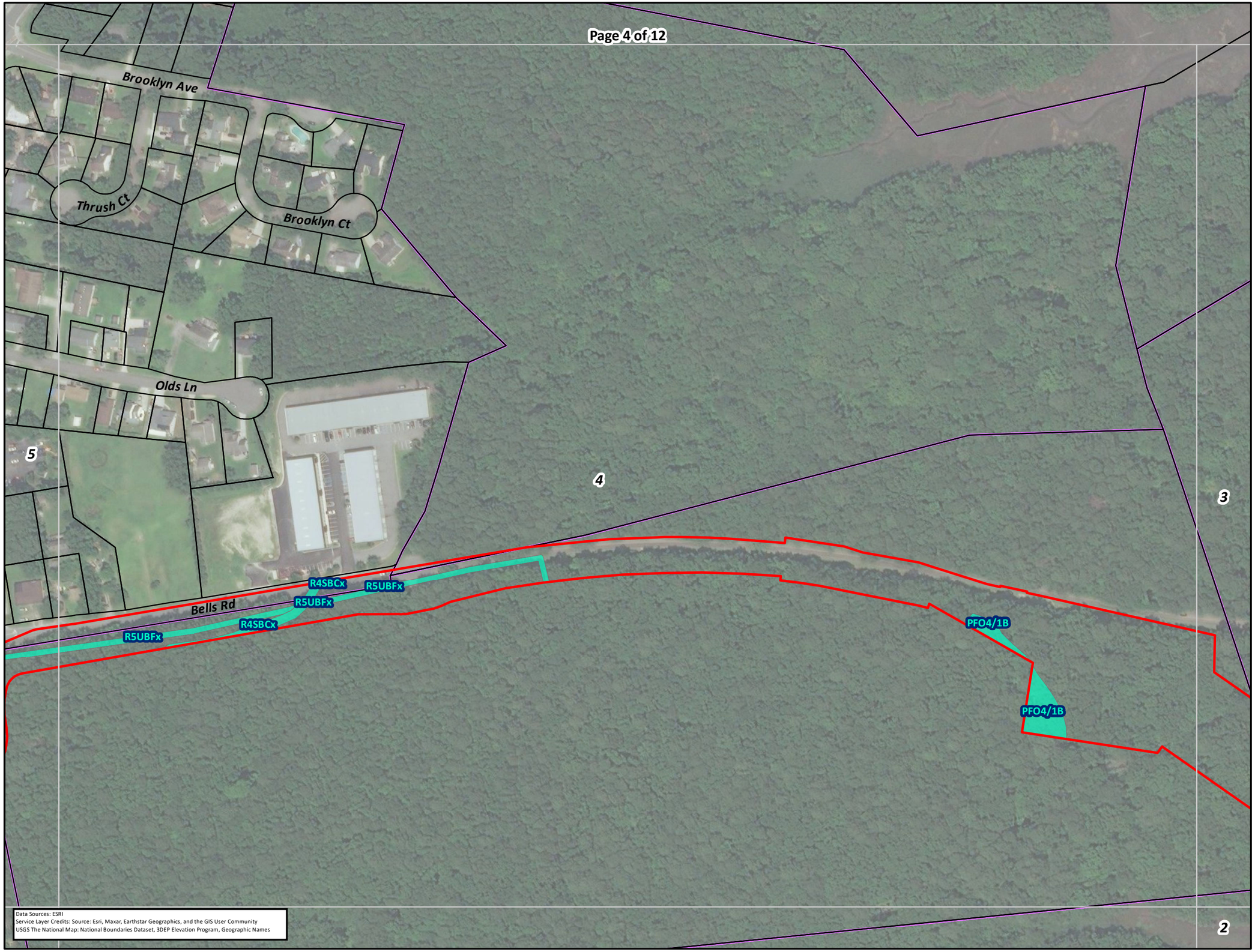
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

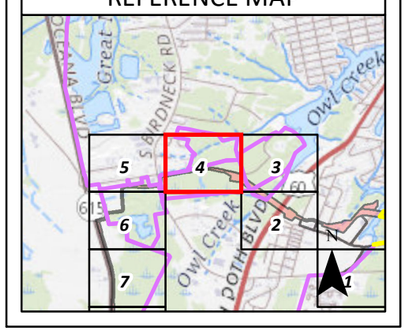
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_USNavy_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

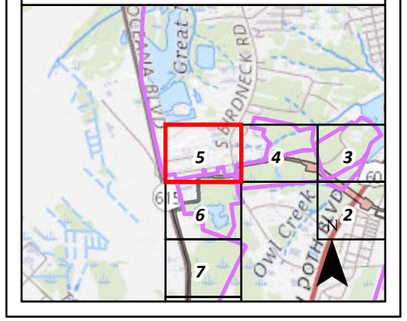
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

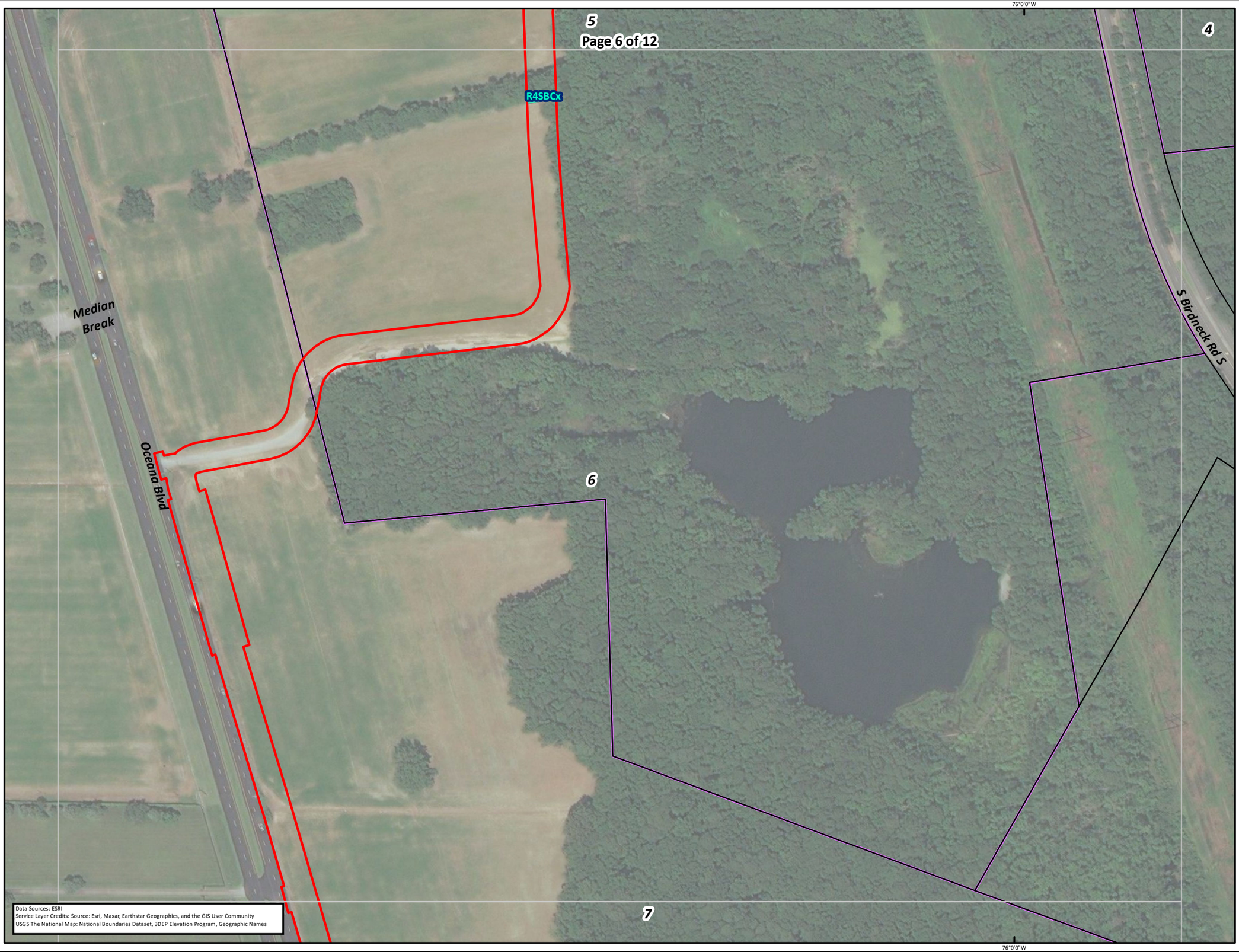
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

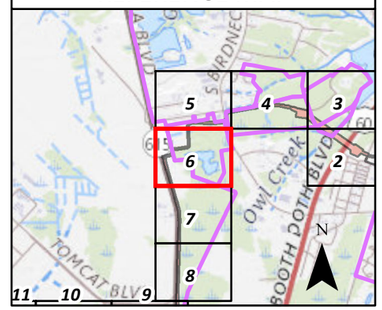
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

76°0'0"W

7

Oceana Blvd

Median Break

PFO1B

PFO1B

PFO1B

8

76°0'0"W

Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

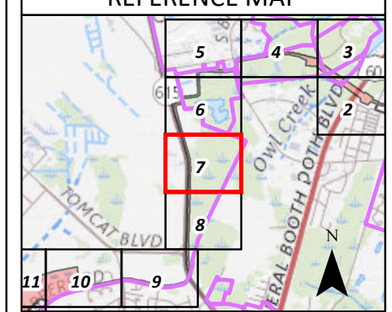
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_USNavy_Mapbook_Aerial.mxd

76°0'0"W

PFO1B

PFO1B

Oceana Blvd

8

Tomcat Blvd

Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

76°0'0"W

NOT FOR CONSTRUCTION

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy®

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

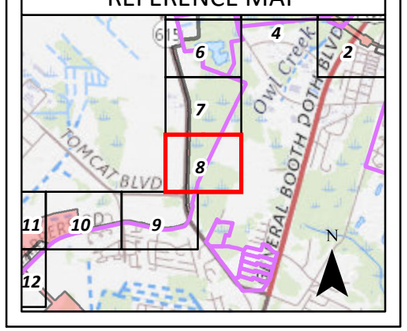
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

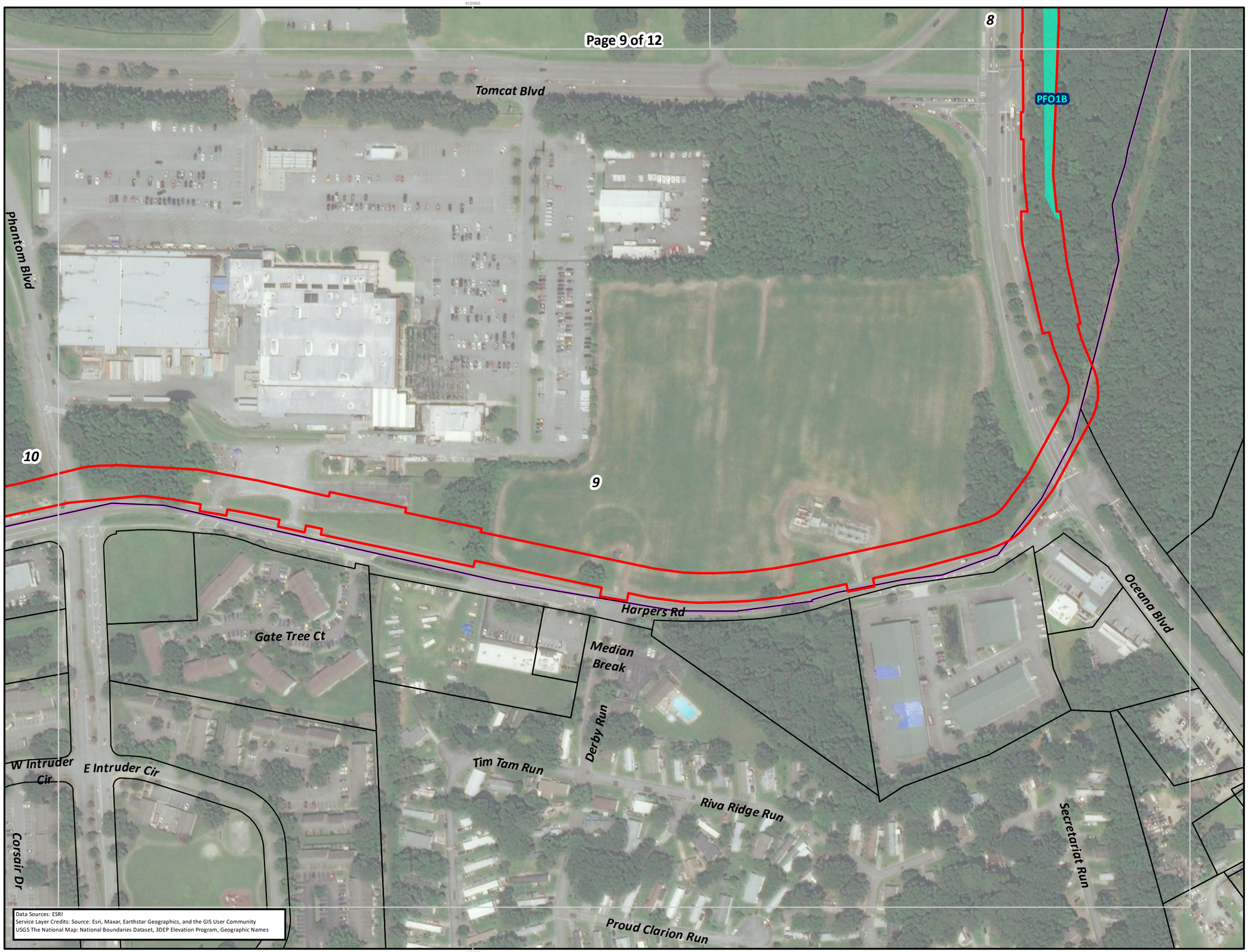
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_USNavy_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

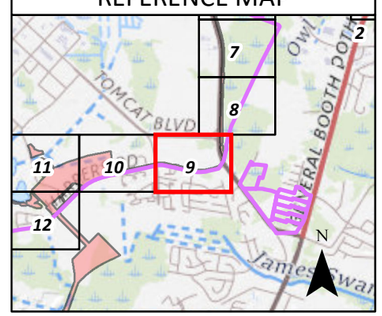
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

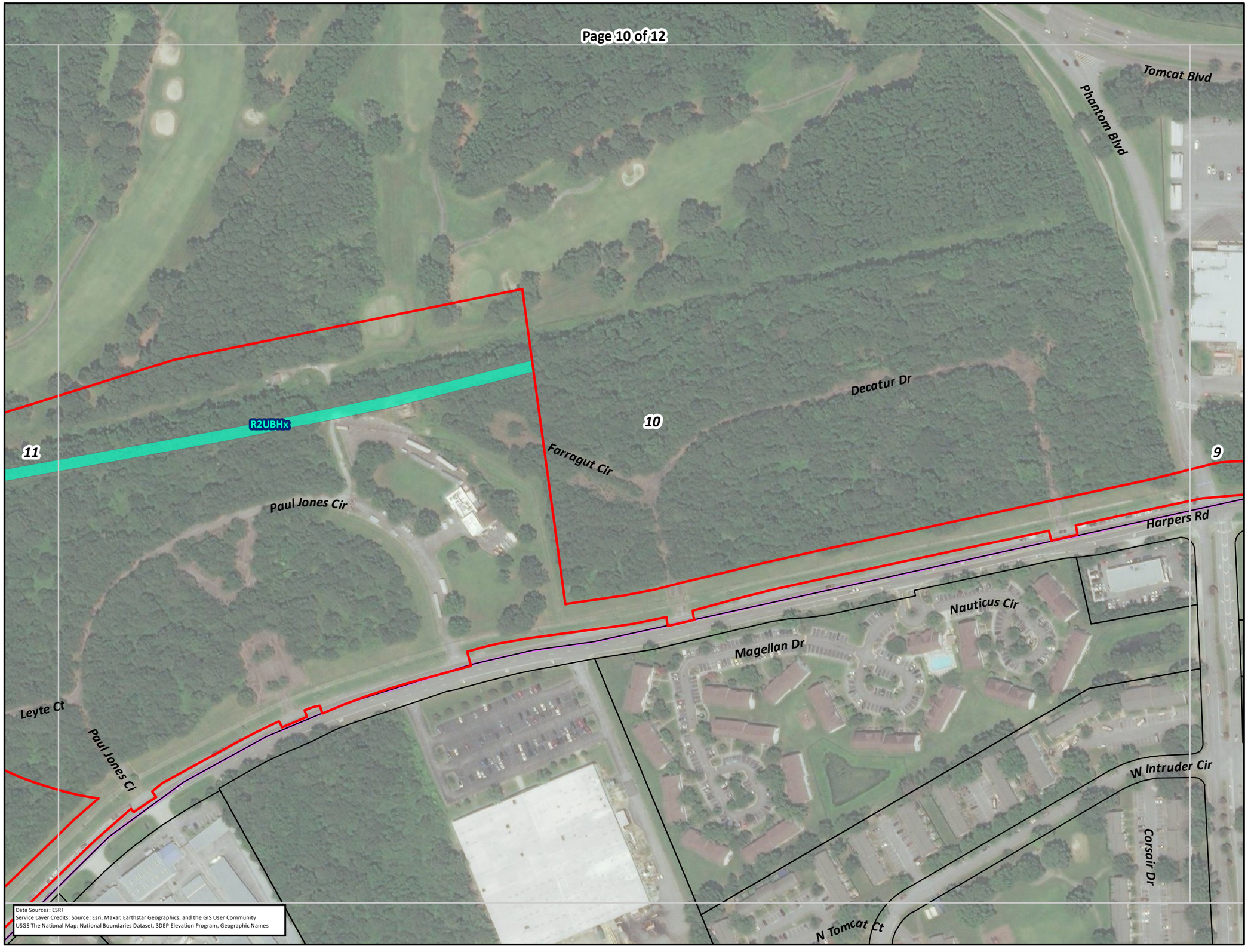
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

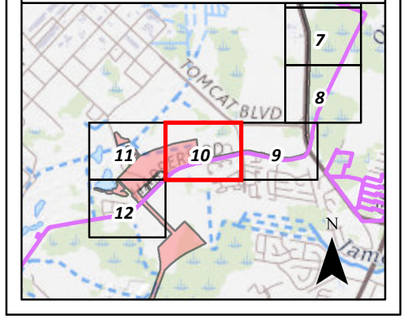
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

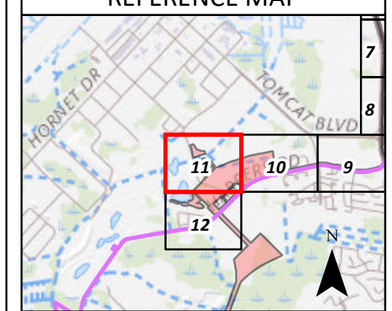
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: US NAVY PJD

Dominion Energy

- Former NAS Oceana South Virginia Beach Annex**
- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy

**Property is owned by the NAVY but has been included in the SMR PJD package to align with previous PJD submittals.

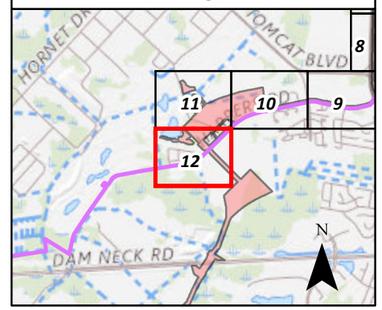
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/6/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

APPENDIX D: DATA SHEETS AND PHOTOLOG

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Requirement Control Symbol EXEMPT (Authority: AR 335-15, paragraph 5-2a)

Project/Site: CVOW City/County: Virginia Beach Sampling Date: 06/14/22

Applicant/Owner: Dominion Energy State: VA Sampling Point: EF_W_2004,EF_W_2005, KH_W_004

Investigator(s): Emily Foster, Erin Deck, Tristan Conard Section, Township, Range: N/a

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR or MLRA): LRR T, MLRA 152B Lat: 36.79867 Long: -76.024371 Datum: NAD83

Soil Map Unit Name: Acredale-Urban Land Complex 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 X, Soil X, 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:
3 large isolated features. No inlets or outlets apparent. Data form captures information for EF-W-2004, EF-W-2005, and KH-W-004

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ 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 X	No ____	Depth (inches): 12
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): ____

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

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

Remarks:
Tadpools and aquatic insects present in standing water. Water is approx. 1 ft deep.]

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

Sampling Point: EF-W-2004,2005, KH-W-004

Tree Stratum (Plot size: 30 FT)	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:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30)			
1. *Diodia virginiana*	60	Yes	FACW
2. *Turf grass*	5	No	ND
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 =Total Cover		
50% of total cover: 33	20% of total cover: 13		
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: 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	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		120 (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.)
area is highly disturbed. Located on the golf course. Maintained/mowed vegetation.

SOIL

Sampling Point: EF-W-2004,2005, KH-W-004

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10Yr 3/2	100					Sandy	
6-12	10YR 4/1	100					Sandy	silty 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)
X 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: unknown

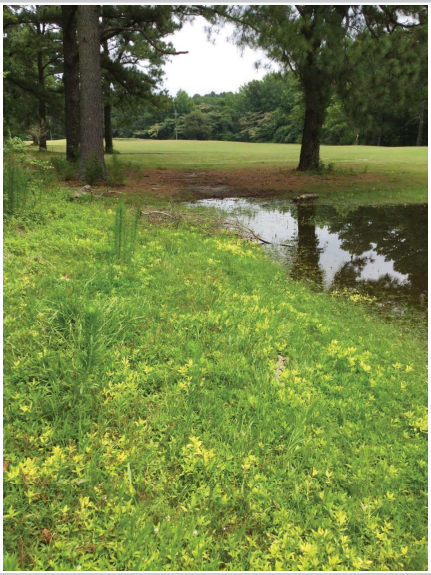
Depth (inches): 12

Hydric Soil Present? **Yes** X **No** ___

Remarks:
Compaction/ potential gravel layer unknown. Soils are naturally problematic due to development.

Photograph Log

Date: 6/14/22 Feature ID: EF_W_2004, EF_W_2005, KH_W_004



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction East

Comments:



Photograph Number 3

Photograph Direction South

Comments:



Photograph Number 4

Photograph Direction West

Comments:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Requirement Control Symbol EXEMPT (Authority: AR 335-15, paragraph 5-2a)

Project/Site: CVOW City/County: Virginia Beach Sampling Date: 06/14/22
Applicant/Owner: Dominion Energy State: VA Sampling Point: EF_W_2004, EF_W_2005, KH_W_004_UP
Investigator(s): Emily Foster, Erin Deck, Tristan Conard Section, Township, Range: N/a
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR T, MLRA 152B Lat: 36.798664 Long: -76.024412 Datum: NAD83
Soil Map Unit Name: Acredale-Urban Land Complex 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 X, Soil X, 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 ____	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:
Upland for EF-W-2004, EF-W-2005, KH-W-004

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: EF_W_2004, EF_W_2005, KH_W_004_UP

Tree Stratum (Plot size: 30 FT)	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:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30)			
1. *Trifolium repens*	60	Yes	FACU
2. *Turf grass*	10	No	ND
3. *Vitis rotundifolia*	20	No	FAC
4. *Lonicera japonica*	20	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 =Total Cover		
50% of total cover: 55	20% of total cover: 22		
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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	100 (A)		380 (B)
Prevalence Index = B/A =			3.80

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.)
area is highly disturbed. Located on the golf course. Maintained/mowed vegetation.

SOIL

Sampling Point: EF_W_2004, EF_W_2005, KH_W_004_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 %	Type[1]	Loc[2]	Texture	Remarks
0-20	10Yr 3/2	100					Sandy	Silty 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: unknown

Depth (inches): 12

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Compaction/ potential gravel layer unknown

Photograph Log

Date: 6/14/22 Feature ID: EF_W_2004, EF_W_2005, KH_W_004_UP



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction East

Comments:



Photograph Number 3

Photograph Direction South

Comments:



Photograph Number 4

Photograph Direction West

Comments:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Requirement Control Symbol EXEMPT (Authority: AR 335-15, paragraph 5-2a)

Project/Site: CVOW City/County: Virginia Beach Sampling Date: 06/14/22

Applicant/Owner: DOMINION State: VA Sampling Point: EF_W_2006

Investigator(s): Emily Foster Section, Township, Range: N/a

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

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: 36.798180 Long: -76.024467 Datum: WGS84

Soil Map Unit Name: Acredale-Urban land complex NWI classification: PEM

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

Are Vegetation X, Soil X, or Hydrology X 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:
PEM adjacent to road in golf course

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- X 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 X	No ____	Depth (inches): 1
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

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

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: EF_W_2006

Tree Stratum (Plot size: 30 FT)	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:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30)			
1. *Plantago major*	5	No	FAC
2. *Turf grass*	10	Yes	ND
3. *Murdannia keisak*	5	No	OBL
4. *Juncus tenuis*	10	Yes	FAC
5. *Diodia virginiana*	20	Yes	FACW
6. *Eleocharis obtusa*	5	No	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	55 =Total Cover		
50% of total cover: 28	20% of total cover: 11		
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: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (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	10	x 1 =	10
FACW species	20	x 2 =	40
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	45 (A)		95 (B)

Prevalence Index = B/A = 2.11

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.)
area is highly disturbed. Located on the golf course. Maintained/mowed vegetation.

SOIL

Sampling Point: EF_W_2006

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/1	100					Loamy/Clayey	
3-14	10YR 5/2	98	7.5YR 4/4	2	C	PL	Loamy/Clayey	course sand grains present
								restrictive gravel layer

[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)
- X 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: gravel

Depth (inches): 14

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Photograph Log

Date: 6/14/22 Feature ID: EF__W_2006



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction East

Comments:



Photograph Number 3

Photograph Direction South

Comments:



Photograph Number 4

Photograph Direction West

Comments:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Requirement Control Symbol EXEMPT (Authority: AR 335-15, paragraph 5-2a)

Project/Site: CVOW City/County: Virginia Beach Sampling Date: 06/14/22

Applicant/Owner: DOMINION State: VA Sampling Point: EF_W_2006_UP

Investigator(s): Emily Foster Section, Township, Range: N/a

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

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: 36.798120 Long: -76.024440 Datum: WGS84

Soil Map Unit Name: Acredale-Urban land complex NWI classification: Uplands

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

Are Vegetation X, Soil X, 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 ____	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: EF_W_2006_UP

Tree Stratum (Plot size: 30 FT)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	40	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40	=Total Cover	
50% of total cover: 20		20% of total cover:	8
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Herb Stratum (Plot size: 30)			
1. *Trifolium repens*	60	Yes	FACU
2. *Turf grass*	10	No	ND
3. *Anthoxanthum aristatum*	10	No	UPL
4. *Juncus tenuis*	10	No	FAC
5. *Pinus taeda*	5	No	FAC
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:)			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	60	x 4 =	240
UPL species	10	x 5 =	50
Column Totals:	125 (A)		455 (B)

Prevalence Index = B/A = 3.64

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.)
area is highly disturbed. Located on the golf course. Maintained/mowed vegetation.

SOIL

Sampling Point: EF_W_2006_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 4/2	100					Loamy/Clayey	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.)

- ___ 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: gravel

Depth (inches): 4

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Compaction/ potential gravel layer unknown

Photograph Page

EF_W_2006_UP

Feature ID _____ Date 06/14/2022



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction East

Comments:



Photograph Number 3

Photograph Direction South

Comments:



Photograph Number 4

Photograph Direction West

Comments:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Requirement Control Symbol EXEMPT (Authority: AR 335-15, paragraph 5-2a)

Project/Site: CVOW City/County: Virginia Beach Sampling Date: 6/14/2022

Applicant/Owner: DOMINION State: VA Sampling Point: EF_W_2007

Investigator(s): E. Foster Section, Township, Range: N/a

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

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: 36.800994 Long: -76.018425 Datum: WGS84

Soil Map Unit Name: Acredale-Urban land complex NWI classification: PFO

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:
PFO wetland fed by an unusual spring (could be natural or water/pipe leak). Well developed wetland.

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)
- ___ 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)
- x 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 x	No ____	Depth (inches): 0
Water Table Present?	Yes x	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 0

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

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: EF_W_2007

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	10	Yes	FAC
2. *Pinus taeda*	15	Yes	FAC
3. *Salix nigra*	5	No	OBL
4.			
5.			
6.			
7.			
8.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	
Sapling/Shrub Stratum (Plot size: 30)			
1. *Quercus nigra*	5	Yes	FAC
2. *Morella cerifera*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover: 4	
Herb Stratum (Plot size: 30)			
1. *Microstegium vimineum*	50	Yes	FAC
2. *Osmunda spectabilis*	5	No	OBL
3. *Osmundastrum cinnamomeum*	10	No	FACW
4. *Woodwardia areolata*	10	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75	=Total Cover	
50% of total cover: 38		20% of total cover: 15	
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: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (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	20	x 1 =	20
FACW species	10	x 2 =	20
FAC species	95	x 3 =	285
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	125 (A)		325 (B)
Prevalence Index = B/A =			2.60

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: EF_W_2007

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
0-1	10YR 2/1	100					Loamy/Clayey	sandy/loamy
1-20	2.5YR 4/1	100					Loamy/Clayey	sandy/loamy

[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:

Photograph Log

Date: 6/14/22 Feature ID: EF_W_2007



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction East

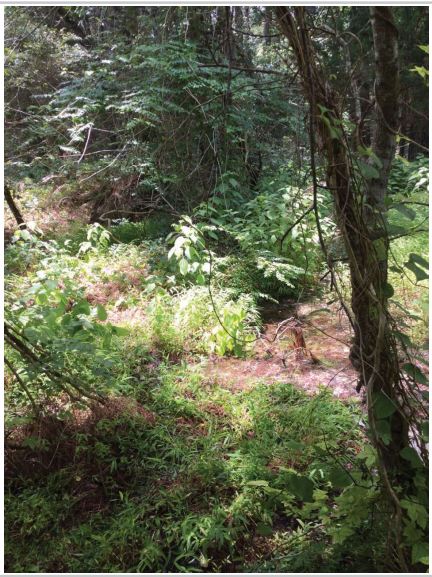
Comments:



Photograph Number 3

Photograph Direction WNW

Comments:



Photograph Number 4

Photograph Direction West

Comments:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

Requirement Control Symbol EXEMPT (Authority: AR 335-15, paragraph 5-2a)

Project/Site: CVOW City/County: Virginia Beach Sampling Date: 06/14/2022

Applicant/Owner: Dominion State: VA Sampling Point: EF_W_2007_UP

Investigator(s): Emily Foster Section, Township, Range: N/a

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: 36.800897 Long: -76.018435 Datum: WGS84

Soil Map Unit Name: Acredale-Urban land complex NWI classification: Uplands

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:
Upland placed near access roads for golf course.

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:
None

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: EF_W_2007_UP

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus taeda*	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover:	4
Sapling/Shrub Stratum (Plot size: 30)			
1. *Pyrus calleryana*			UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Herb Stratum (Plot size: 30)			
1. *Campsis radicans*	15	Yes	FAC
2. *Andropogon virginicus*	10	Yes	FACU
3. *Lonicera japonica*	10	Yes	FACU
4. *Smilax rotundifolia*	5	No	FAC
5. *Eupatorium capillifolium*	5	No	FACU
6. *Anthoxanthum odoratum*	10	Yes	FACU
7. *Ambrosia artemisiifolia*	10	Yes	FACU
8.			
9.			
10.			
11.			
12.			
	65	=Total Cover	
50% of total cover: 33		20% of total cover:	13
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: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (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	40	x 3 =	120
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	85 (A)		300 (B)

Prevalence Index = B/A = 3.53

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.)
None

SOIL

Sampling Point: EF_W_2007_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 3/2	100					Sandy	loamy 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: asphalt/gravel

Depth (inches): 8

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
None

Photograph Log

Date: 6/14/22 Feature ID: EF_W_2007_UP



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction East

Comments:



Photograph Number 3

Photograph Direction South

Comments:



Photograph Number 4

Photograph Direction West

Comments:

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: Dominion CVOW City/County: Virginia Beach Sampling Date: 12/20/2021

Applicant/Owner: Dominion State: VA Sampling Point: JC_W_101_WET

Investigator(s): James Cook Section, Township, Range: N/a

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

Subregion (LRR or MLRA): LRR P, MLRA 135B Lat: 36.800897 Long: -76.004191 Datum: NAD83

Soil Map Unit Name: Tomotley Loam 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 _____, 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:
Wetland status was likely created or exascerbated by the presence of the easemtn. Soil was compacted with clear presense of rutting

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)
- X 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)
- X 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): 14

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: JC_W_101_WET

Tree Stratum (Plot size: 30)	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: 30)			
1. *Liquidambar styraciflua*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 =Total Cover		
50% of total cover: 3	20% of total cover: 1		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30)			
1. *Juncus effusus*	40	Yes	OBL
2. *Scirpus cyperinus*	40	Yes	OBL
3. *Solidago gigantea*	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 =Total Cover		
50% of total cover: 43	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30)			
1. *Smilax rotundifolia*	5	Yes	FAC
2.			
3.			
4.			
5.			
	5 =Total Cover		
50% of total cover: 3	20% of total cover: 1		

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	80	x 1 =	80
FACW species	5	x 2 =	10
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		120 (B)

Prevalence Index = B/A = 1.26

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: JC_W_101_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
0-3	7.5YR 4/1	100					Loamy/Clayey	
3-10	7.5YR 4/1	60	5YR 4/4	10	c	PL/M	Loamy/Clayey	Prominent redox concentrations
10-20	2.5Y 6/1	90	7.5YR 5/8	10	C	M	Loamy/Clayey	Spodosol

[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:

Layer 3/10 also had 7.5YR 6/1 depletions within layer (30%)

Photograph Log

Date: 12/20/21

Feature Name: JC_W_101



Photograph Direction North

Comments:



Photograph Direction East

Comments:



Photograph Direction South

Comments:



Photograph Direction West

Comments:

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: Dominion CVOW City/County: Virginia Beach Sampling Date: 12/20/2021

Applicant/Owner: Dominion State: VA Sampling Point: JC_W_101_UP

Investigator(s): James Cook Section, Township, Range: N/a

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

Subregion (LRR or MLRA): LRR P, MLRA 135B Lat: 36.800897 Long: -76.004191 Datum: NAD83

Soil Map Unit Name: Tomotley Loam 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 ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Pine Forest

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:
No apparent hydrology beyond fac-neutral test. Area is likely fringe/marginal and on the transitional line.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: JC_W_101_UP

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus taeda*	60	Yes	FAC
2. *Liquidambar styraciflua*	10	No	FAC
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: 30)			
1. *Pinus taeda*	20	Yes	FAC
2. *Liquidambar styraciflua*	10	Yes	FAC
3.			
4.			
5.			
6.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Herb Stratum (Plot size: 30)			
1. *Arundinaria gigantea*	30	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	
Woody Vine Stratum (Plot size: 30)			
1. *Smilax rotundifolia*	5	Yes	FAC
2.			
3.			
4.			
5.			
	5	=Total Cover	
50% of total cover: 3		20% of total cover: 1	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (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	30	x 2 =	60
FAC species	115	x 3 =	345
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		405 (B)
Prevalence Index = B/A =			2.79

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: JC_W_101_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							Peat	Duff
3-6	10YR 3/1	100					Loamy/Clayey	
6-14	10YR 7/1	100					Loamy/Clayey	Spodosol
14-20	10YR 7/1	99	2.5Y 7/3	1	c	M	Loamy/Clayey	Distinct 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)**
- X 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:

Photograph Log

Date: 12/20/21

Feature Name: JC_W_101 UP



Photograph Direction North

Comments:



Photograph Direction East

Comments:



Photograph Direction South

Comments:



Photograph Direction West

Comments:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Dominion CVOW City/County: Virginia Beach/Virginia Beach Sampling Date: 2/15/2022

Applicant/Owner: Dominion State: VA Sampling Point: JC_W_1001

Investigator(s): J.Cook, E. Deck Section, Township, Range: N/a

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): MLRA 153B of LRR T Lat: 36.819081 Long: -76.000968 Datum: WGS84

Soil Map Unit Name: Acredale Silt Loam 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 _____, 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:
Wetland bisected by berm along the easement, largely PFO with small PEM offshoot. Entire feature mapped as PFO

Observed Classifications:
Cowardin: PFO

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)
- x Saturation Visible on Aerial Imagery (C9)
- x 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 x No _____

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

Remarks:
hydrology is met with secondary indicators.

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

Sampling Point: JC W 1001

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua, Sweet-Gum	35	Yes	FAC
2. Pinus taeda, Loblolly Pine	20	Yes	FAC
3.			
4.			
5.			
6.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Sapling Stratum (Plot size: 30 ft)			
1. Pinus taeda, Loblolly Pine	15	Yes	FAC
2. Liquidambar styraciflua, Sweet-Gum	5	Yes	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft)			
1. Arundinaria tecta, Switch Cane	15	Yes	FACW
2. Phragmites australis, Common Reed	15	Yes	FACW
3. Gramminoid sp	10	Yes	ND
4. Juncus effusus, Lamp Rush	10	Yes	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (Plot size: 30 ft)			
1. Lonicera japonica, Japanese Honeysuckle	4	Yes	FACU
2. Smilax laurifolia, Laurel-Leaf Greenbrier	4	Yes	FACW
3.			
4.			
5.			
	8 = Total Cover		
50% of total cover: 4	20% of total cover: 1.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 10 (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	10	x 1 =	10
FACW species	34	x 2 =	68
FAC species	75	x 3 =	225
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	123 (A)		319 (B)

Prevalence Index = B/A = 2.59

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: JC_W_1001

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	10YR 4/2	100%					Clay loam	
2-20	10YR 6/1	80%	10YR 5/6	20%	C	M	Clay 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.)

- ___ 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)
- x 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): _____

Hydric Soil Present? Yes x No _____

Remarks:

Photograph Log

Date: 2/15/22

Feature Name: JC_W_1001



Photograph Direction North

Comments:



Photograph Direction East

Comments:



Photograph Direction South

Comments:



Photograph Direction West

Comments:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Dominion CVOW City/County: Virginia Beach/Virginia Beach Sampling Date: 2/15/2022

Applicant/Owner: Dominion State: VA Sampling Point: JC_W_1001-Up

Investigator(s): J.Cook, E. Deck Section, Township, Range: N/a

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 6

Subregion (LRR or MLRA): MLRA 153B of LRR T Lat: 36.819105 Long: -76.000847 Datum: NAD83

Soil Map Unit Name: Acredale silt loam 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 x, 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:
Berm developed within easement, likely placed over previous wetland but unable to confirm. Largely mowed with difficult vegetation ID.

Observed Classifications:
Cowardin: Upland

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:
No apparent hydrology (unable to dig to confirm)

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

Sampling Point: JC_W_1001_U

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft)			
1. Gramminoid sp	30	Yes	ND
2. Festuca rubra, Red Fescue	25	Yes	FACU
3. Juncus effusus, Lamp Rush	15	No	OBL
4. Cirsium arvense, Canadian Thistle	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	50 (A)		155 (B)

Prevalence Index = B/A = 3.10

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).

Heavily mowed and unable to id grass species

SOIL

Sampling Point: JC_W_1001_UP

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
0-3	10YR 3/2	100%					Loam	
3-7	10YR 5/3	100%					Loam	
7-20	10YR 5/4	100%					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.)

- ___ 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): _____

Hydric Soil Present? Yes _____ No x

Remarks:

Photograph Log

Date: 2/15/22

Feature Name: JC_W_1001_U



Photograph Direction North

Comments:



Photograph Direction East

Comments:



Photograph Direction South

Comments:



Photograph Direction West

Comments:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Dominion CVOW City/County: Virginia Beach/Virginia Beach Sampling Date: 5/17/2021

Applicant/Owner: Dominion State: VA Sampling Point: JD_W_015

Investigator(s): J. D'Augustine, K. Walls Section, Township, Range: Virginia Beach

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

Subregion (LRR or MLRA): MLRA 153B of LRR T Lat: 36.818569 Long: -75.98849 Datum: WGS84

Soil Map Unit Name: 32 - Rappahannock mucky peat, strongly saline NWI classification: E2EM3

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:

Observed Classifications:
Cowardin: PFO

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)
- x 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)
- x 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): 6
Saturation Present? (includes capillary fringe)	Yes x	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes x No _____

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

Remarks:

Small fiddler crabs observed along wetland area. Open water observed within 20 feet of data point.

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

Sampling Point: JD_W_015

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 30 ft)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 30 ft)			
1. Morella cerifera, Southern Bayberry	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 30 ft)			
1. Phragmites australis, Common Reed	80	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30 ft)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		205 (B)

Prevalence Index = B/A = 2.16

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: JD_W_015

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
0-12	10YR 3/1	100%					Clay loam	
12-20	GLY1 4/1	100%					Clay 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.)

- ___ 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)
- x 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): _____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

Photograph Log

Date: 5/17/21

Feature Name: JD_W_015



Photograph Direction NE

Comments:



Photograph Direction NW

Comments:



Photograph Direction SE

Comments:



Photograph Direction SW

Comments:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Dominion CVOW City/County: Virginia Beach/Virginia Beach Sampling Date: 5/17/2021

Applicant/Owner: Dominion State: VA Sampling Point: JD_W_015_UP

Investigator(s): J. D'Augustine, K. Walls Section, Township, Range: Virginia Beach

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

Subregion (LRR or MLRA): MLRA 153B of LRR T Lat: 36.818721 Long: -75.988446 Datum: WGS84

Soil Map Unit Name: 43 - Yeopim silt loam 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 _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x No _____	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____ No x	
Wetland Hydrology Present?	Yes _____ No x	

Remarks:

Observed Classifications:

Cowardin: Upland

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 (Five Strata) – Use scientific names of plants.

Sampling Point: JD_W_015_UP

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda, Loblolly Pine	40	Yes	FAC
2. Acer rubrum, Red Maple	20	Yes	FAC
3. Liquidambar styraciflua, Sweet-Gum	15	Yes	FAC
4.			
5.			
6.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua, Sweet-Gum	10	Yes	FAC
2. Carya glabra, Pignut Hickory	10	Yes	FACU
3. Carpinus caroliniana, American Hornbeam	5	Yes	FAC
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Shrub Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua, Sweet-Gum	15	Yes	FAC
2. Quercus falcata, Southern Red Oak	5	Yes	FACU
3. Vaccinium angustifolium, Late Lowbush Blueberry	5	Yes	FACU
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 30 ft)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Woody Vine Stratum (Plot size: 30 ft)			
1. Vitis rotundifolia, Muscadine	5	Yes	FAC
2. Smilax rotundifolia, Horsebrier	5	Yes	FAC
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: 8 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 72.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	115	x 3 =	345
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	135 (A)		425 (B)

Prevalence Index = B/A = 3.15

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: JD_W_015_UP

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
0-4	10YR 3/2	100%					Loam	
4-20	10YR 5/4	100%					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.)

- ___ 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): _____

Hydric Soil Present? **Yes** _____ **No** x

Remarks:

Photograph Log

Date: 5/17/21

Feature Name: JD_W_015_UP



Photograph Direction NE

Comments:



Photograph Direction SW

Comments:



Photograph Direction West

Comments:



Photograph Direction SE

Comments:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Dominion CVOW City/County: Virginia Beach/Virginia Beach Sampling Date: 5/17/2021

Applicant/Owner: Dominion State: VA Sampling Point: JD_W_016

Investigator(s): J. D'Augustine, K. Walls Section, Township, Range: Virginia Beach

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

Subregion (LRR or MLRA): MLRA 153B of LRR T Lat: 36.819893 Long: -75.99009 Datum: WGS84

Soil Map Unit Name: 1 - Acredale silt loam NWI classification: PFO

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:

Observed Classifications:

Cowardin: PFO

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)
- x 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)
- x Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- x 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 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: JD_W_016

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba, Northern White Oak	30	Yes	FACU
2. Acer rubrum, Red Maple	15	Yes	FAC
3. Nyssa sylvatica, Black Tupelo	10	No	FAC
4.			
5.			
6.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Sapling Stratum (Plot size: 30 ft)			
1. Acer rubrum, Red Maple	30	Yes	FAC
2. Liquidambar styraciflua, Sweet-Gum	15	Yes	FAC
3. Nyssa sylvatica, Black Tupelo	10	No	FAC
4.			
5.			
6.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Shrub Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua, Sweet-Gum	15	Yes	FAC
2. Pinus taeda, Loblolly Pine	5	Yes	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 30 ft)			
1. Zephyranthes atamasca, Atamasco-Lily	30	Yes	FACW
2. Galium tinctorium, Stiff Marsh Bedstraw	20	Yes	FACW
3. Dichanthelium clandestinum, Deer-Tongue Rosette G	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30 ft)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88.9% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	100	x 3 =	300
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	200 (A)		560 (B)

Prevalence Index = B/A = 2.80

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: JD_W_016

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	10YR 4/2	100%					Clay loam	
2-20	10YR 6/1	80%	10YR 5/6	20%	C	M	Clay 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.)

- ___ 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)
- x 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): _____

Hydric Soil Present? Yes x No _____

Remarks:

Photograph Log

Date: 5/17/21

Feature Name: JD_W_016



Photograph Number _____

Photograph Direction SE

Comments:



Photograph Number _____

Photograph Direction SW

Comments:



Photograph Number _____

Photograph Direction West

Comments:



Photograph Number _____

Photograph Direction North

Comments:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Dominion CVOW City/County: Virginia Beach/Virginia Beach Sampling Date: 5/17/2021

Applicant/Owner: Dominion State: VA Sampling Point: JD_W_016_UP

Investigator(s): J. D'Augustine, K. Walls Section, Township, Range: Virginia Beach

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): MLRA 153B of LRR T Lat: 36.819673 Long: -75.990034 Datum: WGS84

Soil Map Unit Name: 1 - Acredale silt loam 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 _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x No _____	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____ No x	
Wetland Hydrology Present?	Yes _____ No x	

Remarks:

Observed Classifications:
Cowardin: Upland

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 (Five Strata) – Use scientific names of plants.

Sampling Point: JD_W_016_UP

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba, Northern White Oak	30	Yes	FACU
2. Pinus taeda, Loblolly Pine	25	Yes	FAC
3. Acer rubrum, Red Maple	15	Yes	FAC
4. Liquidambar styraciflua, Sweet-Gum	5	No	FAC
5.			
6.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling Stratum (Plot size: 30 ft)			
1. Acer rubrum, Red Maple	5	Yes	FAC
2. Liquidambar styraciflua, Sweet-Gum	5	Yes	FAC
3. Nyssa sylvatica, Black Tupelo	5	Yes	FAC
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Shrub Stratum (Plot size: 30 ft)			
1. Nyssa sylvatica, Black Tupelo	5	Yes	FAC
2. Acer rubrum, Red Maple	5	Yes	FAC
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30 ft)			
1. Dichanthelium clandestinum, Deer-Tongue Rosette G	15	Yes	FACW
2. Acer rubrum, Red Maple	10	Yes	FAC
3. Liquidambar styraciflua, Sweet-Gum	10	Yes	FAC
4. Quercus alba, Northern White Oak	5	No	FACU
5. Pinus taeda, Loblolly Pine	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30 ft)			
1. Parthenocissus quinquefolia, Virginia-Creeper	5	Yes	FACU
2. Smilax rotundifolia, Horsebrier	5	Yes	FAC
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: 11 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 84.6% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	100	x 3 =	300
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	155 (A)		490 (B)

Prevalence Index = B/A = 3.16

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: JD_W_016_UP

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
0-3	10YR 3/2	100%					Loam	
3-7	10YR 5/3	100%					Loam	
7-20	10YR 5/4	100%					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.)

- ___ 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): _____

Hydric Soil Present? **Yes** _____ **No** x

Remarks:

Photograph Log

Date: 5/17/21

Feature Name: JD_W_016_UP



Photograph Direction South

Comments:



Photograph Direction North

Comments:



Photograph Direction West

Comments:



Photograph Direction East

Comments:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Dominion CVOW City/County: Virginia Beach/Virginia Beach Sampling Date: 5/18/2021

Applicant/Owner: Dominion State: VA Sampling Point: JD_W_019

Investigator(s): J. D'Augustine, K. Walls Section, Township, Range: Virginia Beach

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

Subregion (LRR or MLRA): MLRA 153B of LRR T Lat: 36.817835 Long: -75.986478 Datum: WGS84

Soil Map Unit Name: 32 - Rappahannock mucky peat, strongly saline NWI classification: E2EM

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:

Observed Classifications:
Cowardin: PEM

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)
- x Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- x Water-Stained Leaves (B9)
- x 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)
- x 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): 2
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:

Atlantic ribbed mussel observed within the intertidal wetland.

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

Sampling Point: JD_W_19

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 30 ft)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 30 ft)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft)			
1. Phragmites australis, Common Reed	30	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (Plot size: 30 ft)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	30 (A)		60 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [x] 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: JD_W_019

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
0-20	10YR 3/3	100%					Clay loam	
20-22	10YR 5/1	100%					Sandy clay 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.)

- ___ 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)
- x 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): _____

Hydric Soil Present? **Yes** x **No** _____

Remarks:

Photograph Log

Date: 5/18/21

Feature Name: JD_W_019



Photograph Direction East

Comments:



Photograph Direction West

Comments:



Photograph Direction South

Comments:



Photograph Direction North

Comments:

STREAM ID EF_S_2001		**STREAM NAME** UNT	
CLIENT Dominion		**PROJECT NAME** CVOW	
LAT 36.80062698	**LONG** -76.0191892	**STATE** Virginia	**COUNTY** Virginia Beach
INVESTIGATORS E. Foster, E. Deck, T. Conard			**DATE** 06/15/2022
WATER TYPE TNW ☐ RPW ☑ NRPW ☐		**FLOW REGIME** Perennial ☑ Intermittent ☐ Ephemeral ☐	

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 25.0 ft
Top of Bank Height:
LB 7.0 ft RB 7.0 ft
Water Depth: 12.00 in
Water Width: 12.0 ft
Ordinary High Water Mark (Width): 14.0 ft
Ordinary High Water Mark (Height): 18.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 36 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	35
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	30
Muck-Mud	black, very fine organic (FPOM)	15
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
✓ ROW ___ Other:

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

Floodplain Width
✓ Wide > 30ft ___ Moderate 15-30ft
___ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Stream ID EF_S_20 Date 06/15/2022



Photograph Number 1

Photograph Direction East

Comments: Upstream photo



Photograph Number 2

Photograph Direction West

Comments: Downstream

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

EF S 2001 – UT

EF_S_2001

NC DWQ Stream Identification Form Version 4.11

Date: 6/15/2022	**Project/Site:** CVOW	**Latitude:** 36.800626985
Evaluator: E. Foster, E.Deck, T. Conard	**County:** Virginia Beach	**Longitude:** -76.019189214
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 32	**Stream Determination (circle one)** Ephemeral Intermittent **[Perennial]**	**Other** *e.g. Quad Name:* N/A

A. Geomorphology (Subtotal = 13.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	[3]
2. Sinuosity of channel along thalweg	0	[1]	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	0	1	[2]	3
6. Depositional bars or benches	0	[1]	2	3
7. Recent alluvial deposits	0	[1]	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	0	[0.5]	1	1.5
11. Second or greater order channel	No = 0		[Yes = 3]	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9.5)				
12. Presence of Baseflow	0	1	2	[3]
13. Iron oxidizing bacteria	0	[1]	2	3
14. Leaf litter	[1.5]	1	0.5	0
15. Sediment on plants or debris	0	[0.5]	1	1.5
16. Organic debris lines or piles	0	[0.5]	1	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 9)				
18. Fibrous roots in streambed	3	[2]	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	0	[1]	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	[0]	0.5	1	1.5
23. Crayfish	0	0.5	1	[1.5]
24. Amphibians	0	0.5	1	[1.5]
25. Algae	[0]	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 [Other = 0]			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID EF_S_2001	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.80062698 **LONG** -76.0191892	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS E. Foster, E. Deck, T. Conard		**DATE** 06/15/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☑ Intermittent ☐ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 25.0 ft
Top of Bank Height:
LB 7.0 ft RB 7.0 ft
Water Depth: 12.00 in
Water Width: 12.0 ft
Ordinary High Water Mark (Width): 14.0 ft
Ordinary High Water Mark (Height): 18.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 36 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	35
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	30
Muck-Mud	black, very fine organic (FPOM)	15
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
✓ ROW ___ Other:

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

Floodplain Width
✓ Wide > 30ft ___ Moderate 15-30ft
___ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Stream EF_S_2001 Date 06/15/2022



Photograph Number 1

Photograph Direction East

Comments: Upstream photo



Photograph Number 2

Photograph Direction West

Comments: Downstream

Photograph Number 3

Photograph Direction _____

Comments:

Photograph Number 4

Photograph Direction _____

Comments:

STREAM ID EF_D_2004	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.801009 **LONG** -76.017002	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS E. Foster, E. Deck, T. Conard		**DATE** 06/15/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 6.0 ft
Top of Bank Height:
LB 4.0 ft RB 4.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: Southeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 12 in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	50
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	0

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	30
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
✓ ROW ___ Other:

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

Floodplain Width
✓ Wide > 30ft ___ Moderate 15-30ft
___ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Stormwater conveyance, discharges to EF_S_2001.

Photograph Page

Stream ID EF_D_2004 Date 06/15/2022



Photograph Number 1

Photograph Direction North

Comments:

Photograph Number 2

Photograph Direction

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_101	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.798325 **LONG** -76.021536	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 6.00 in
Water Width: 0.5 ft
Ordinary High Water Mark (Width): 1.0 ft
Ordinary High Water Mark (Height): 4.0 in
Flow Direction: Southwest

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	60
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch with marginal bed and bank.

Photograph Page

Stream ID JC_D_101 Date 11/20/2021



Photograph Number 1

Photograph Direction NE

Comments:



Photograph Number 2

Photograph Direction SW

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_102	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.799045 **LONG** -76.023659	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 5.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 6.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 15 in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run % Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	60
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch with marginal bed and bank.

Photograph Page

Stream ID JC_D_102 Date 11/20/2021



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_103	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.797466 **LONG** -76.022860	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 10.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 8.00 in
Water Width: 5.0 ft
Ordinary High Water Mark (Width): 5.0 ft
Ordinary High Water Mark (Height): 8.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ✓ Yes ___ No
Culvert Material: Smooth Metal
Culvert Size: 15 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	60
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ✓ Moderate 15-30ft
___ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_103 Date 11/20/2021



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_104	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.797264 **LONG** -76.022722	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 10.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 5.00 in
Water Width: 3.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 5.0 in
Flow Direction: Southeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ✓ Yes ___ No
Culvert Material: Smooth Metal
Culvert Size: 15 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	30
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ✓ Moderate 15-30ft
___ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_104 Date 11/20/2021



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_105	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.795758 **LONG** -76.023069	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 10.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 5.0 ft
Ordinary High Water Mark (Height): 3.0 in
Flow Direction: Southwest

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	15
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
✓ Wide > 30ft ___ Moderate 15-30ft
___ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

STREAM ID JC_D_106	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.796512 **LONG** -76.022153	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 10.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 8.00 in
Water Width: 5.0 ft
Ordinary High Water Mark (Width): 5.0 ft
Ordinary High Water Mark (Height): 8.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	15
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

STREAM ID JC_D_107	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.796592 **LONG** -76.022016	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 4.0 ft
Top of Bank Height:
LB 0.5 ft RB 0.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 1.0 ft
Ordinary High Water Mark (Height): 2.0 in
Flow Direction: Southeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	15
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

STREAM ID JC_D_108	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.800064 **LONG** -76.010513	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 5.0 ft
Top of Bank Height:
LB 1.0 ft RB 1.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: Southeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 12 in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	25
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_108 Date 11/20/2021



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_109	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.799884 **LONG** -76.009494	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 7.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: Southeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 12 in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	25
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_109 Date 11/20/2021



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_110	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.799572 **LONG** -76.006738	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 7.0 ft
Top of Bank Height:
LB 3.0 ft RB 3.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 12.0 in
Flow Direction: East

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	25
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_110 Date 11/20/2021



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_111	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.799901 **LONG** -76.005012	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 5.0 ft
Top of Bank Height:
LB 1.5 ft RB 1.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: East

Sinuosity ✓ Low ___ Medium ___ High

Gradient ___ Flat (0.5/100 ft) ✓ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	35
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_111 Date 11/20/2021



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_112	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.804161 **LONG** -76.004638	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 8.0 ft
Top of Bank Height:
LB 1.5 ft RB 1.5 ft
Water Depth: 2.00 in
Water Width: 3.0 ft
Ordinary High Water Mark (Width): 4.0 ft
Ordinary High Water Mark (Height): 5.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	50
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ✓ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_112 Date 11/20/2021



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_113	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.803982 **LONG** -76.004537	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 3.0 ft
Top of Bank Height:
LB 0.5 ft RB 0.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 1.0 ft
Ordinary High Water Mark (Height): 3.0 in
Flow Direction: South

Sinuosity ___ Low ✓ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	50
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_113 Date 11/20/2021



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_114	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.710764 **LONG** -76.004528	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 11/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 9.0 ft
Top of Bank Height:
LB 4.0 ft RB 4.0 ft
Water Depth: 2.00 in
Water Width: 1.0 ft
Ordinary High Water Mark (Width): 5.0 ft
Ordinary High Water Mark (Height): 10.0 in
Flow Direction: East

Sinuosity ___ Low ✓ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	50
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_114 Date 11/20/2021



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JC_D_115	**STREAM NAME** N/a		
CLIENT Dominion	**PROJECT NAME** CVOW, Offshore Wind		
LAT 36.819251 **LONG** -76.000119	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JC, JS		**DATE** 12/20/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 1.0 ft RB 1.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.5 ft
Ordinary High Water Mark (Height): 4.0 in
Flow Direction: East

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 24 in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other: Stormwater

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Non-jurisdictional ditch (stormwater).

Photograph Page

Stream ID JC_D_115 Date 12/20/2021



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JD_D_068	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.819459 **LONG** -75.989499	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JD		**DATE** 05/17/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 10.0 ft
Top of Bank Height:
LB 4.0 ft RB 4.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✓ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 99

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	33
Silt	0.004-0.06 mm	33
Clay	< 0.004 mm (slick)	33

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

None observed

Photograph Log

Date: 5/17/21 Feature ID: JD_D_068



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JD_D_069	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.820312 **LONG** -75.997577	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JD		**DATE** 05/18/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 3.0 ft
Top of Bank Height:
LB 1.0 ft RB 1.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: West

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✓ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 99

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	33
Silt	0.004-0.06 mm	33
Clay	< 0.004 mm (slick)	33

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Log

Date: 5/18/21 Feature ID: JD_D_069



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JD_D_070	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.8195566 **LONG** -75.9989777	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JD		**DATE** 05/18/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 0.5 ft RB 0.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: West

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✓ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 99

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	33
Silt	0.004-0.06 mm	33
Clay	< 0.004 mm (slick)	33

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

None observed

Photograph Log

Date: 5/18/21 Feature ID: JD_D_070



Photograph Number 1

Photograph Direction East

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JD_D_071	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.8189573 **LONG** -76.0000479	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JD		**DATE** 05/18/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 0.5 ft RB 0.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: North

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✓ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 99

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	33
Silt	0.004-0.06 mm	33
Clay	< 0.004 mm (slick)	33

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

None observed

Photograph Log

Date: 5/18/21 Feature ID: JD_D_071



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

STREAM ID JD_D_076	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.8004315 **LONG** -76.011103	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS JD		**DATE** 05/18/2021	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 0.5 ft RB 0.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 0.0 ft
Ordinary High Water Mark (Height): 0.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✓ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✓ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 99

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	33
Silt	0.004-0.06 mm	33
Clay	< 0.004 mm (slick)	33

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

None observed.

Photograph Log

Date: 5/18/21 Feature ID: JD_D_076



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

KH_D_001

STREAM ID KH-D-001	**STREAM NAME** Unnamed		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.801739 **LONG** -76.026191	**STATE** Virginia	**COUNTY** City of Virginia Beach	
INVESTIGATORS KH EF		**DATE** 04/06/2002	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 8.0 ft
Top of Bank Height:
LB 5.0 ft RB 5.0 ft
Water Depth: 2.60 in
Water Width: 4.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 4.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes X No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		0
Boulder	> 256 mm (10")	0
Cobble	64-256 mm (2.5"-10")	0
Gravel	2-64 mm (0.1"-2.5")	0
Sand	0.06-2mm (gritty)	20
Silt	0.004-0.06 mm	50
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	20
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ✓ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
___ Narrow <15ft

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

None observed

Photograph Page

Stream ID KH_D_001 Date 04/06/2002



Photograph Number 1

Photograph Direction South

Comments:



Photograph Number 2

Photograph Direction West

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

APPENDIX E: PREVIOUS DELINEATION REPORT(S)



Wetland Delineation Report – Naval Air Station Oceana

Coastal Virginia Offshore Wind Project,
Virginia Beach, Virginia

March 2021

Project No.: 0522898

The business of sustainability

ERM

Document details	
Document title	Wetland Delineation Report – Naval Air Station Oceana
Document subtitle	Coastal Virginia Offshore Wind Project, Virginia Beach, Virginia
Project No.	0522898
Date	March 2021
Version	2.0
Author	Environmental Resources Management, Inc. (ERM)
Client Name	Dominion Energy

Document history

				ERM approval to issue		
Version	Revision	Author	Reviewed by	Name	Date	Comments
1.0		ERM	SBT	Pat Robblee	2/11/21	
2.0		ERM	SBT/JCP	Pat Robblee	3/8/21	Incorporated feedback from NAS Oceana

CONTENTS

1. INTRODUCTION 1
1.1 ENVIRONMENTAL SETTING 1
1.1.1 Physiography, Geology, and Geomorphology 1
1.1.2 Hydrology 1
1.1.3 Soils 2
1.1.4 Vegetation 2
2. METHODS 2
2.1 DESKTOP REVIEW 2
2.1.1 Aerial Photography 3
2.1.2 National Wetland Inventory 3
2.1.3 Soil Survey 3
2.1.4 National Hydrography Dataset 3
2.1.5 Site Assessment 3
2.2 FIELD SURVEY 4
2.2.1 Wetlands 4
2.2.2 Waterbodies 6
2.2.3 Non-Tidal Ditches 7
2.2.4 Non-Water Points 7
3. RESULTS 7
4. REFERENCES 8

APPENDIX A 2016 PRELIMINARY JURISDICTIONAL DETERMINATION
APPENDIX B FIGURES
APPENDIX C DATASHEETS

List of Tables

Table 1-1: USDA NRCS Soil Series Mapped Onsite 2
Table 2-1: Naming Protocol for Unique ID 3
Table 3-1: Delineated Non-Tidal/Non-Water Ditches 8
Table 3-2: Data for Northwest Corner of Survey Area 8

Acronyms and Abbreviations

CFR	Code of Federal Regulations
ERM	Environmental Resources Management
FAC	Facultative Plants
FACU	Facultative Upland Plants
FACW	Facultative Wetland Plants
GIS	Geographic Information Systems
GPS	Global Positioning System
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OBL	Obligate Wetland Plants
OHWM	Ordinary High Water Mark
PEM	Palustrine System Emergent Wetland Class
PFO	Palustrine Forested Wetland Class
Project	Oceana Project
PSS	Palustrine System Scrub-Shrub Wetland Class
Site	Oceana Project
UPL	Upland Plants
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

1. INTRODUCTION

On behalf of Dominion Energy, Environmental Resources Management (ERM) conducted a wetland and waterbody delineation on U.S. Navy lands at Naval Air Station Oceana for the proposed Coastal Virginia Offshore Wind Project ("Project") in Virginia Beach, Virginia. The approximately 42-acre survey area ("Site") is located east of Oceana Boulevard (Route 615) and south of Bells Road, and is accessed from Oceana Boulevard via a gravel road. This report provides a description of the environmental setting of the Site, the methodology utilized for the wetland and waterbody delineation, and the results of the survey.

1.1 ENVIRONMENTAL SETTING

The Site is located within the Coastal Plain Province in Virginia's Tidewater region, and falls within the U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map Princess Anne, Virginia (Figure 1). The Site consists of active and open agricultural fields comprised of soy beans (*Glycine max*) within a network of excavated drainage ditches intended to improve drainage over the relatively flat landscape. At the time of the survey, the soy had been harvested. Narrow patches of forested upland comprised of hardwood and evergreen species are scattered throughout the survey area, which also contained small piles of tires and other household debris at the time of survey.

A majority of the Site has a convex landscape, which is typical of uplands; however, ERM observed a depressed area containing household debris, trash, and pieces of concrete/asphalt within the northwest corner of the Site, adjacent to the intersection of Oceana Boulevard and Bells Road. Vegetation in this area included autumn olive (*Elaeagnus umbellata*), which is indicative of a disturbed area and does not have a wetland indicator status.

1.1.1 Physiography, Geology, and Geomorphology

The Site is located within the Outer Coastal Plain sub-province of the Coastal Plain physiographic province. Virginia's Coastal Plain is bordered by the Fall Line to the west and by the Atlantic Ocean and Chesapeake Bay and its tributaries to the east. This is the youngest of the physiographic provinces, formed by sediments eroded from the Appalachian Highlands and deposited along the Atlantic shoreline. The Coastal Plain varies in topography from north to south. The northern Coastal Plain consists of three peninsulas formed between the four major tributaries of Chesapeake Bay: the Potomac, the Rappahannock, the York, and the James Rivers. In the north, the Northern Neck is somewhat hilly and well drained. Further south across the Middle Peninsula and Lower Peninsula the topography flattens, until south of the James River the landscape is nearly level. The Eastern Shore, separated from the mainland by the Chesapeake Bay, exhibits little topographic relief. These subtle differences in topography and the variety of fresh, brackish, and saltwater systems from ocean and inland bays to rivers, ponds, and bogs, have contributed to the wide variety of natural communities found on the Coastal Plain. (VADCR 2019).

1.1.2 Hydrology

The Site is located within the Lower Chesapeake Watershed and sub-watershed of Eastern Lower Delmarva (HUC 02040304). A large wetland complex was previously delineated in 2016 by the Navy (Appendix A) in a forested area located east of the Site. According to the Federal Emergency Management Agency's National Flood Hazard Layer, the entirety of the Project Site is located within Zone X (unshaded): *areas of minimal flooding* (FEMA 2009).

1.1.3 Soils

Table 1-1 provides a list of the types of soil series mapped by the U.S. Department of Agriculture, Natural Resource Conservation Service (USDA NRCS) on the Site. Figure 1 (Appendix B) depicts the distribution of the soil series. The Site contains six major soil types. Of these, Bojac (7), Dragston (13), and Munden (19), are the dominant soil types present, accounting for about 96.5 percent of the Site. These soil types, which are not considered hydric, are described below:

- The Bojac and Dragston series consists of deep, well drained and or gravelly soils. These soils have a high rate of water transmission. Bojac and Dragston soils are on marine terraces and have slopes of 0 to 2 percent (NRCS 2017).
- The Munden series have moderately fine texture to moderately coarse texture with a moderate infiltration rate when thoroughly wet. These soils are on marine terraces and prime farmland. Slopes are 0 to 2 percent (NRCS 2017).

The remaining soil types present, Nimmo (24), Tomoteley (38), and Udorthents (40), account for about 3.5 of the Site. These soils, which are considered hydric, occur along the eastern boundary of the Site adjacent to the forested area to the east noted above (NRCS 2017).

As described above, most of the Site is currently disturbed by agricultural activities.

Table 1-1: USDA NRCS Soil Series Mapped Onsite [1]

Map Unit	Map Unit Name	Total Acres	% of Total
7	Bojac fine sandy loam, 0 to 2 percent	13.1	31.0
13	Dragston fine sandy loam, 0 to 2 percent	12.5	29.6
19	Munden fine sandy loam, 0 to 2 percent	15.0	35.5
24	Nimmo loam, 0 to 2 percent	0.1	0.2
38	Tomoteley loam, 0 to 2 percent	0.2	0.5
40	Udorthents, loamy, 0 to 25 percent	1.3	3.1

1.1.4 Vegetation

The vegetation on the Site consists of agriculture soy. The excavated drainage ditches are vegetated with herbaceous cover, including patches of early yellowrocket (*Barbarea verna*), pale dock (*Rumex altissimus*), and goose grass (*Eleusine indica*). The scattered forested patches are dominated by several native species, including southern live oak (*Quercus virginiana*), sweetgum (*Liquidambar styraciflua*), and American holly (*Ilex opaca*) with the common invasive species of autumn olive (*Elaeagnus umbellata*) in the shrub layer.

2. METHODS

2.1 DESKTOP REVIEW

Prior to conducting field surveys, ERM reviewed high-resolution aerial photography and Geographic Information System (GIS) data including the U.S. Fish and Wildlife Service (USFWS) National Wetlands

[1] The sum of the percentages in this table is 99.9% due to rounding.

Inventory (NWI), National Hydrography Dataset (NHD), Natural Resource Conservation Service Web Soil Survey, and USGS topographic maps. These resources were used both prior to and during field surveys to identify potential wetland or waterbody areas.

2.1.1 Aerial Photography

High resolution aerial imagery was reviewed to assist in evaluating the Site for possible wetland signatures and recent disturbances on the landscape that could influence the presence and extent of wetlands. Possible visual signatures include, but are not limited to, surface water, varying color and texture changes in vegetation, and isolated areas within farmland that are not successfully farmed due to poor drainage.

2.1.2 National Wetland Inventory

NWI data (USFWS 2020) were overlaid on high-resolution aerial imagery and reviewed in conjunction with soils surveys and topographic maps. NWI data are subject to limitations associated with the aerial photo interpretation completed to map wetlands; therefore, these data are used as a guide to identify potential wetlands. Maps that illustrated NWI wetland polygons were provided to field crews to help guide targeted field surveys at and near the Site.

2.1.3 Soil Survey

The NRCS Web Soil Survey was used to obtain soil survey information for the Site. Soil maps were used as a guide to identify locations of potential hydric soils on the Site. Field investigation was required to verify the presence of hydric soils, particularly given the disturbed conditions present throughout much of the Site. Figure 1 (Appendix B) presents the soil types mapped onsite.

2.1.4 National Hydrography Dataset

The NHD depicts surface waters across the United States, including some, but not all, rivers, streams, canals, lakes, and ponds. The data are provided at a scale of 1:24,000. Not all water features are shown at this scale, and those that are provide only a moderate level of detail. The NHD layer includes data for perennial, intermittent, and ephemeral streams as well as artificial paths, canals/ditches, coastlines, connectors, pipelines, and underground conduit (USGS 2019).

2.1.5 Site Assessment

The Site was evaluated using the above desktop resources to determine the potential presence of wetlands, waterbodies (streams and ponds), and non-tidal ditches. Data were also collected to document a lack of water features where desktop data, such as NWI polygons, indicated water features may be present but no such features were identified during the field survey. These were referred to as non-water points. Each water resource documented within the Site was assigned a Project-specific unique identifier or Unique ID. Specific naming conventions were followed during field surveys to catalog each wetland and waterbody documented. Table 2-1 describes each part of the naming convention that comprise the Unique IDs for non-water points identified during field surveys. These naming conventions are used in the results summary table (Table 3-1) and the non-water data sheets provided in Appendix C.

Table 2-1: Naming Protocol for Unique ID

Water Resource	Type	Field Crew Letter	Feature Number
Non-water Point	no = non-water	crew letter (e.g., a, b, c)	001, 002, 003, …

2.2 FIELD SURVEY

On January 21, 2021, ERM performed a field survey to determine if wetlands or waterbodies are present onsite. The Site was surveyed with a transect spacing of 5 to 10 feet between delineators. Field data observation points and non-water points were recorded using a Trimble® 7000 series GeoXH model global positioning system (GPS) unit. The field data collection settings within the GPS units used a sufficient number of available satellites to capture location data. Note that while the GPS data collected during survey provides reasonably accurate spatial information capable of collecting sub-meter accuracy with sufficient satellite reception, it does not constitute the same accuracy as a professional land survey.

2.2.1 Wetlands

Field surveys were based on the wetland delineation methodologies as described in the U.S. Army Corps of Engineers 1987 Manual (1987 Manual; USACE 1987) and the *Regional Supplement to the USACE Wetland Delineation Manual: Atlantic and Gulf Coastal Plain* (Version 2.0; USACE November 2010) with use of the *National Wetland Plant List: 2018* (USACE 2018) for determination of plant indicator status, and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin 1979) to help determine if wetlands are onsite. According to the 1987 Manual, three criteria or parameters are considered during a wetland delineation. For an area to be considered a wetland it must have:

- A predominance of hydrophytic vegetation;
- Indications of wetland hydrology; and
- The presence of hydric soils under normal circumstances (i.e., where naturally problematic conditions or disturbances are absent).

2.2.1.1 Hydrophytic Vegetation

The 1987 Manual and National Wetland Plant List define the wetland indicator status of plants as follows:

- Obligate Wetland Plants (OBL): almost always occur in wetlands (estimated probability >99 percent) under natural conditions. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface. These plants are of four types: submerged, floating, floating-leaved, and emergent.
- Facultative Wetland Plants (FACW): usually occur in wetlands (estimated probability >67 percent to 99 percent), but may occur in non-wetlands. These plants predominantly occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally.
- Facultative Plants (FAC): occur in wetlands and uplands (estimated probability 33 to 99 percent within wetlands). These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation. They have a wide tolerance of soil moisture conditions.
- Facultative Upland Plants (FACU): usually occur in uplands, but many occur in wetlands (estimated probability 1 percent to <33 percent in wetlands). These plants predominantly occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.
- Upland Plants (UPL): almost never occur in wetlands (estimated probability <1 percent). These plants occupy mesic to xeric upland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

Dominant vegetation was assessed for each stratum present (tree, sapling/shrub, woody vine, and herbaceous) at a sample point location. In most cases, plant dominance was determined using the "50/20 Rule" in which species from each stratum that individually or collectively make up more than 50 percent of the total cover in each stratum, plus any other species that account for at least 20 percent of the total cover in the stratum, are determined to be dominant species. The hydrophytic vegetation criterion is met when more than 50 percent of the dominant plant species are classified as OBL, FACW, or FAC. Vegetation information was recorded on the appropriate wetland datasheets (Appendix C).

2.2.1.2 Wetland Hydrology

Hydrology is influenced by many variables, including seasonal and long-term rainfall patterns, local geology, topography, soil type, local water table conditions, and drainage. According to the 1987 Manual and the Regional Supplement, wetland hydrology is present if 14 or more consecutive days of inundation or water saturation within 12 inches of the soil surface occur during the growing season at a minimum frequency of 5 in 10 years.

Indicators of wetland hydrology provide evidence that a site has a persistent wetland hydrologic regime. The Regional Supplement provides a list of hydrology indicators that include primary and secondary indicators, which are grouped as:

- Observation of Surface Water or Saturated Soils
- Evidence of Recent Inundation
- Evidence of Current and Recent Soil Saturation
- Evidence of Other Site Conditions or Data

One primary indicator or two secondary indicators are required to confirm that wetland hydrology is present or occurs at some time during the growing season. Field observations of hydrology were made at each vegetation community sample point. Examples of key indicators observed include presence of surface water, high water table (≤12 inches from surface) within the hole dug for soil observations, saturated soil in the upper portion of the soil profile, water-stained leaves, drainage patterns as evidence of water presence, and the geomorphic position of the vegetation community and sample point location. Hydrology information was recorded on the appropriate wetland datasheet (Appendix C).

2.2.1.3 Hydric Soils

Hydric soils are characterized by specific morphological characteristics developed in the soil profile over time due to reduction of iron, manganese, and sulfur under saturated and anaerobic conditions (NRCS 2018). The 1987 Manual defines hydric soils as soils that are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part. The hydric soil indicators described in the Regional Supplement are a subset of hydric soil indicators described in *Field Indicators of Hydric Soils in the United States, Version 8.*2 (USDA NRCS 2018). The *Munsell Book of Soil Color Charts (Munsell 2015)* was used to determine soil matrix, concentration, depletion and mottle colors, in order to record the soil profile descriptions. The soils were observed and documented at representative sample point locations in both wetland communities and adjacent upland communities to help establish the wetland boundary. Soil profile descriptions were made at each sample point and recorded on the appropriate wetland datasheet (Appendix C).

2.2.1.4 Cowardin Classification

The Cowardin Classification was developed in 1979 to classify a variety of wetland habitats and divides wetlands into five systems: marine, estuarine, riverine, lacustrine, and palustrine (Cowardin 1979). These represent the five major landscape settings in which wetlands are located. The classification system further divides wetland communities into systems and classes. The current survey was conducted in

inland wetlands. Descriptions of the common Cowardin Classification inland community types are described below.

- Palustrine System Emergent Wetland Class (PEM): A PEM wetland is defined as a non-tidal wetland characterized by erect, rooted, hydrophytic herbaceous species. These wetland habitats are often dominated by perennial plants, where the vegetation is present for the majority of the growing season.
- Palustrine System Scrub-Shrub Wetland Class (PSS): A PSS wetland is defined as a non-tidal wetland consisting of woody vegetation that is less than 20 feet tall, including shrubs, young trees, and stunted trees or shrubs.
- Palustrine Forested Wetland Class (PFO): A PFO wetland is defined as a non-tidal wetland characterized by dominant woody vegetation that is greater than 20 feet tall, with an understory of small trees and shrubs, as well as an herbaceous layer.

Each wetland delineated was assigned a Cowardin class. For wetland complexes, or wetlands that are comprised of more than one wetland plant community (i.e., Cowardin class) a sample point was established and observations were recorded to document each community.

2.2.2 Waterbodies

Waterbodies documented during the field survey were assigned a Unique ID according to their flow and hydrology regimes: linear or flowing waterbodies, such as streams and rivers, were assigned a unique ID starting with an “s”; non-flowing open waterbodies, such as ponds and lakes, were assigned a unique ID starting with an “o.” Linear or flowing waterbodies were identified as landscape features with a channel that include a bed and a bank in a concave landscape position where water flow has resulted in a feature that possesses an ordinary high water mark (OHWM). Waterbodies do not include erosional features, such as gullies, rills, or ditches, in accordance with the USACE Regulatory Guidance Letter regarding Ordinary High Water Mark Identification (USACE 2005).

Based on evidence of flow regime at the time of survey, linear waterbodies were attributed a flow regime according to the definitions provided by USACE for the Nationwide Permit Program in Title 33 Code of Federal Regulations (CFR) Part 328 & 329. Non-flowing, open waterbody features were assigned a Cowardin hydrology regime based on observations recorded at the time of survey. Definitions of these flow and hydrology regimes are included below, as defined in Title 33 CFR Part 328.

- Perennial Stream: has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year and groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
- Intermittent Stream: has flowing water during most times of the year when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water and runoff from rainfall is a supplemental source of water for stream flow.
- Ephemeral Stream: has flowing water only during and for a short duration after precipitation events. Ephemeral stream beds are located above the water table year-round; therefore, groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Non-flowing or open waterbodies were documented based on the evidence of inundation/saturation at the time of surveys, utilizing one of four categories based on the Cowardin classification including the following:

- Non-flowing: water covers the land surface throughout the year in all years.

- Semi-non-flowing: surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.
- Seasonally flooded: surface water is present for extended periods especially early in the growing season, but is absent by the end of the season in most years. When surface water is absent, the water table is often near the land surface.
- Temporarily flooded: surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the season.

2.2.3 Non-Tidal Ditches

Ditches include waters that are constructed in tributaries or are relocated tributaries or, in certain circumstances, drain wetlands, or clearly function as a tributary. Ditches do not include erosional features, such as gullies, rills, and ephemeral streams that do not have a bed and banks and OHWM (U.S. Environmental Protection Agency [EPA] 2015). Stormwater features include structural or engineered control devices to treat or store polluted stormwater (EPA 2007).

Field crews documented these features as they had OHWM, bed and bank and connected to waters of the United States offsite. Ditches that exhibited wetland characteristics were classified as wetlands if they met the three parameters specified in the 1987 Manual or applicable Regional Supplement.

2.2.4 Non-Water Points

Non-water points were collected to document areas mapped as NWI polygons or NHD lines that did not meet the required criteria of wetlands or waterbodies (i.e., upland habitat). Non-water points were also used to document areas that were investigated as potentially meeting wetland criteria, but were ultimately determined to be non-wetland areas during the field investigation. Observations were recorded, photographs were taken, and a GPS point was collected at each non-water point. Wetland delineation datasheets were used to record information for non-water points (Appendix C).

3. RESULTS

On January 21, 2021, ERM surveyed the Site for the presence and extent of wetlands and waterbodies. Weather conditions during the fieldwork were typical for this time of year, and the entire Site was observed dry. No wetland or waterbody features were recorded indicating that use of the Site for the Project will not affect jurisdictional surface water features.

Four non-tidal/non-water ditches, cumulatively measuring 0.19 acres (approximately 0.5 percent of the survey area), were observed within the Site (Appendix B, Figure 2). Summary information on these features is provided in Table 3-1 below. Datasheets with photos of each ditch are provided in Appendix C. In ERM's opinion, the ditches do not represent jurisdictional surface water features.

As noted in Section 1.1 above, ERM observed a depressed area containing household debris, trash, and pieces of concrete/asphalt within the northwest corner of the Site, adjacent to the intersection of Oceana Boulevard and Bells Road. Vegetation in this area included autumn olive (*Elaeagnus umbellata*), which does not have a wetland indicator status. A data sheet for this area is provided in Appendix C, with summary information provided in Table 3-2 below.

Table 3-1: Delineated Non-Tidal/Non-Water Ditches

Unique ID	Vegetation	Soils	Hydrology	Non-tidal ditch Area (Acres)	Latitude	Longitude	Wetland Classification Y/N
noa001	No hydrophytic vegetation indicators present	No hydric soil indicators present	No primary or secondary hydrology indicators present and no surface water, saturation, or water table present	0.045	36.81389	-76.00483	N
noa002				0.072	36.81662	-76.00549	N
noa003				0.049	36.81824	-76.00411	N
noa004				0.024	36.81776	-76.00599	N

Table 3-2: Data for Northwest Corner of Survey Area

Unique ID	Vegetation	Soils	Hydrology	Latitude	Longitude	Wetland Classification Y/N
noa005	No hydrophytic vegetation indicators present	No hydric soil indicators present	No primary or secondary hydrology indicators present and no surface water, saturation, or water table present	36.81893	-76.00737	N

4. REFERENCES

Cowardin, L.M., Carter, V., Golet, F.C., and E.T. LaRoe. 1979. *Classification of wetlands and deep-water habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., Jamestown, North Dakota: Northern Prairie Wildlife Research Center Home Page. Accessed 4 January 20201. Available online at https://www.fws.gov/wetlands/documents/classification-of-wetlands-and-deepwater-habitats-of-the-united-states.pdf

Federal Emergency Management Agency (FEMA). 2009. National Flood Hazard Layer. Federal Emergency Management Agency. Washington, DC. Available online at https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

Federal Register. July 13, 1994. Changes in hydric soils of the United States. Available online at: https://www.govinfo.gov/content/pkg/FR-1994-07-13/html/94-16835.htm

Federal Register. June 29, 2015. Clean Water Rule: Definition of "Waters of the United States." Vol. 80, No. 124. Available online at: https://www.federalregister.gov/d/2015-13435

Munsell Soil-Color Charts with Genuine Munsell Color Chips Book. 2015. Munsell Color X-rite.

U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

U.S. Army Corps of Engineers (USACE). 2005. *Ordinary High Water Mark Identification*. Regulatory Guidance Letter No. 05-05. Accessed 16 September 2020. Available online at https://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf

U.S. Army Corps of Engineers (USACE). 2012. Interim *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*. ERDC/EL TR-12-9. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE). 2018. National Wetland Plant List, version 3.4. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH Accessed 20 December 2020. Available online at http://wetland-plants.usace.army.mil/

U.S. Department of Agriculture National Resources Conservation Service (USDA NRCS). 2017. Web Soil Survey. Accessed 29 January 2021. Available online at https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Department of Agriculture Natural Resource Conservation Service (USDA NRCS). 2018. *Field Indicators of Hydric Soils in the United States* (Version 8.2). L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils. Accessed 29 January 2021. Available online at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_053171.pdf

U.S. Environmental Protection Agency (US EPA). 2007. Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites. EPA-833-R-06-004. Retrieved from: https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf

U.S. Fish and Wildlife Service (USFWS). 2020. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/

U.S. Geological Survey (USGS) National Hydrology Dataset (NHD). 2019. Accessed 15 December 2020. Available online at https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science_support_page_related_con=0#qt-science_support_page_related_con

Virginia Department of Conservation and Recreation (VADCR): Native Plants for Conservation, Restoration, and Landscaping: Virginia's Physiographic Provinces. 2019. Accessed 20 December 2020. Available online at https://www.dcr.virginia.gov/natural-heritage/va-physiographic-provinces

APPENDIX A 2016 PRELIMINARY JURISDICTIONAL DETERMINATION

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

MAY 11, 2016

PRELIMINARY JURISDICTIONAL DETERMINATION

Eastern Virginia Regulatory Section
NAO-2008-2946 (West Neck Creek, London Bridge Creek, Great Neck Creek)

Navy MidAtlantic Region
Mr. Mike Jones
Code N-45, Regional Environmental Group
1510 Gilbert Street
Norfolk, Virginia 23511-2737

Dear Mr. Jones:

This letter is in regard to your request for a preliminary jurisdictional determination for waters of the U.S. (including wetlands) on property known as Oceana Naval Air Station, in Virginia Beach, Virginia.

The map entitled "Wetland Delineation Naval Air Station Oceana 20 May 2011", prepared by the US Army Corps of Engineers provides the location(s) of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark.

This verification supersedes any previous verification within the areas surveyed and the entire wetland delineation is now valid for a period of five years from the date of this letter.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this

preliminary jurisdictional determination and the attachments hereto if you agree with the determination, or you may request and obtain an approved jurisdictional determination. This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application.

Enclosed is a copy of the “Preliminary Jurisdictional Determination Form”. Please review the document, sign, and return one copy to Mr. Brian Denson, either via email (brian.c.denson@usace.army.mil) or via standard mail to US Army Corps of Engineers, Regulatory Office, and ATTN: Brian Denson, 803 Front Street Norfolk, Virginia 23510 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date.

If you have any questions, please contact me, either via telephone at (757) 201-7792 or via email at brian.c.denson@usace.army.mil.

Sincerely,



Brian Denson
Project Manager,
Environmental Scientist

Enclosure(s): Delineation Map, Preliminary JD Form, Supplemental Information

Wetland Delineation
Naval Air Station Oceana
20 May 2011

Legend

- Waters
- Wetland
- Installation Area

US Army Corps of Engineers ®
Norfolk District

0 0.25 0.5 1 Miles

US Army Corps of Engineers Regulatory Office
NAS_Oceana_Wetlands.pdf

Aerial Imagery: Virginia Base Mapping Program, 2009

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION:

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):
Tuesday, May 10, 2016

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Navy MidAtlantic Region
Mr. Mike Jones
Code N-45, Regional Environmental Group
1510 Gilbert Street
Norfolk, Virginia 23511-2737

C. DISTRICT OFFICE: Norfolk District (CENAO-REG)

FILE NAME: NAS Oceana Wetland Delineation

FILE NUMBER: NAO-2008-2946

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: **VIRGINIA** County/parish/borough: City: Virginia Beach

Center coordinates of site (lat/long in degree decimal format):

Latitude: 36.823409 ° N Longitude: -76.031639 ° W

Universal Transverse Mercator: NAD 83

Name of nearest waterbody:

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet; width (ft); and/or acres.

Cowardin Class:

Stream Flow:

Wetlands: 5, 303 acres

Cowardin Class: PFO, PSS, PEM

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

3. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA:

Data reviewed for preliminary JD (check all that apply) - checked items should be included in case file and, where checked and requested, appropriately reference sources below.

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:

☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☒ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☐ U.S. Geological Survey Hydrologic Atlas:

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name:

☒ USDA Natural Resources Conservation Service Soil Survey.

Citation:

☒ National wetlands inventory map(s). Cite name:

☐ State/Local wetland inventory map(s):

☐ FEMA/FIRM maps:

☐ 100-year Floodplain Elevation: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): Aerial Photos, various years, VGIN, Google Earth, Bing

or ☒ Other (Name & Date): LIDAR

☒ Previous determination(s): Oceana Delineation, May 20, 2011

File no. and date of response letter: NAO-2008-2946,

☒ Other information (please specify): Re-visited areas that may have changed based on the regional supplement and plant changes. Line is still accurate.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

DENSON.BRIAN.C.1168799671 Digitally signed by DENSON.BRIAN.C.1168799671 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=DENSON.BRIAN.C.1168799671 Date: 2016.05.11 10:47:29 -04'00'

Signature
Regulatory Project Manager
(REQUIRED)

2016-05-11

Date

JONES.MICHAEL.H.1050421968 Digitally signed by JONES.MICHAEL.H.1050421968 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=JONES.MICHAEL.H.1050421968 Date: 2016.05.16 07:16:37 -04'00'

Signature of person requesting
Preliminary JD
(REQUIRED, unless obtaining the signature is impracticable)

Date

Wright, Michael F CIV USN (USA)

From: Denson, Brian C CIV USARMY CENAO (USA) <Brian.C.Denson@usace.army.mil>
Sent: Wednesday, September 25, 2019 11:06 AM
To: Wright, Michael F CIV USN (USA)
Cc: Kube, Peter R CIV USARMY CENAO (US)
Subject: RE: NASO PJD Wetland Mapping Effort_Clarification Regarding Agricultural Land
Signed By: brian.c.denson.civ@mail.mil

Good morning Mike,

That is correct. During our delineation we did NOT look at the farm "fields". Our focus was on the ditches within those fields. Let me know if I can be of any more assistance.

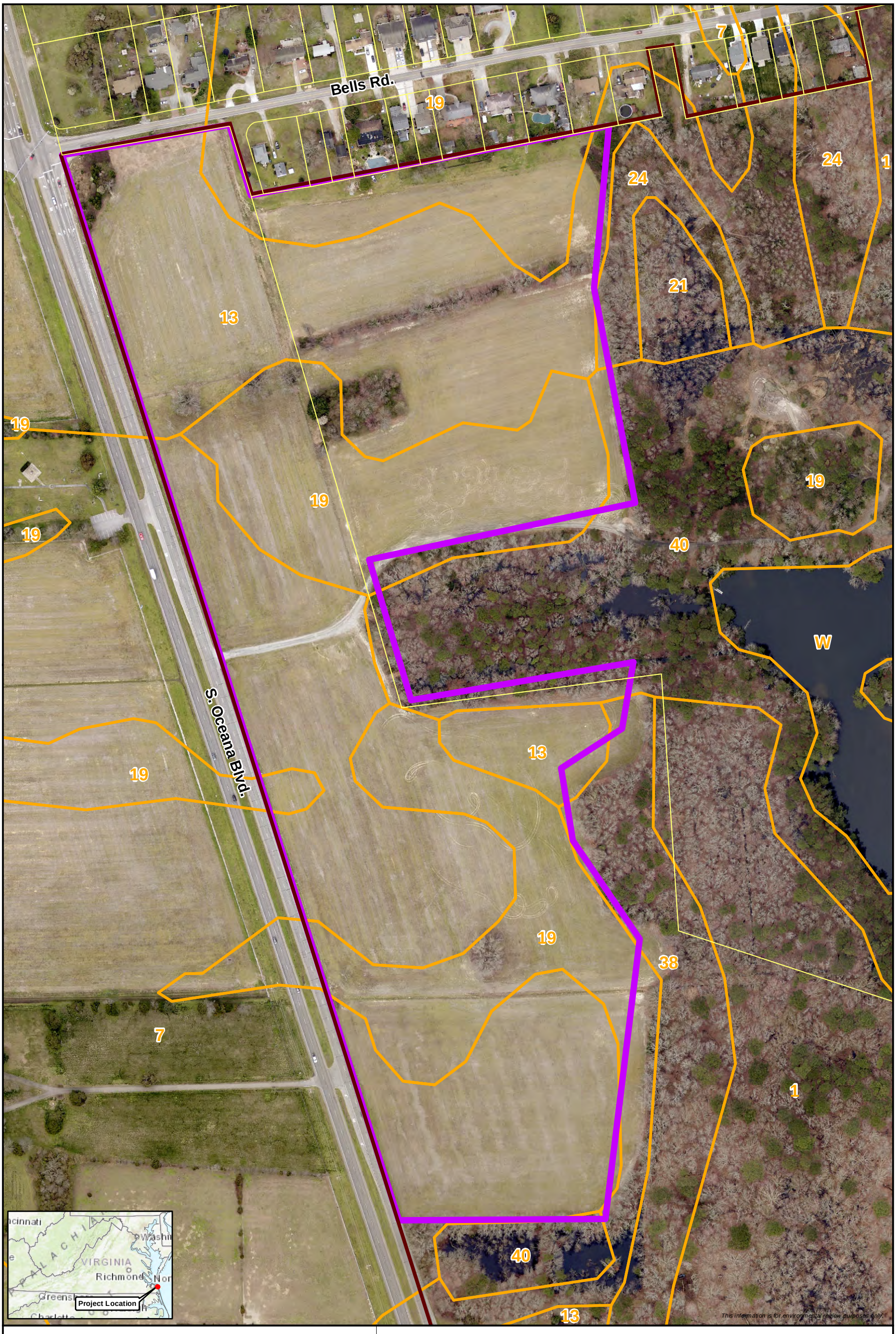
Brian Denson
US Army Corps of Engineers, Norfolk District
Eastern Virginia Regulatory Section
757-201-7792

-----Original Message-----
From: Wright, Michael F CIV USN (USA) [mailto:michael.f.wright@navy.mil]
Sent: Wednesday, September 25, 2019 11:01 AM
To: Denson, Brian C CIV USARMY CENAO (USA) <Brian.C.Denson@usace.army.mil>
Cc: Crum, E E (Pete) CIV USN NAVFAC MIDLANT NOR (USA) <pete.crum@navy.mil>; Herbert, Brandon T CIV USN NAVFAC MIDLANT NOR (USA) <brandon.herbert@navy.mil>; Chamberlain, Terry N CIV USN NAVFAC MIDLANT NOR (USA) <terry.n.chamberlain@navy.mil>; Wright, Kelly D (Dean) CIV USN NAVFAC MIDLANT NOR (USA) <kelly.wright@navy.mil>; Carawan, Wilbur E CIV USN NAVFAC MIDLANT NOR (US) <emmett.carawan@navy.mil>
Subject: NASO PJD Wetland Mapping Effort_Clarification Regarding Agricultural Land

Hi Bryan:
Per our phone conversation, regarding USACE surveying efforts that led up to the initial NAS Oceana (NASO) 2011 PJD and the current 2016 PJD: USACE only surveyed and mapped linear wetland features (ditches and streams) that occurred in agricultural fields; and USACE did not survey for polygonal wetland features within agricultural fields. As such any construction actions that propose to convert agricultural lands that existed during the original 2011 USACE final mapping effort should complete wetland delineations before any ground disturbance. As you mentioned, you came out and confirmed no wetlands were present within the agricultural fields associated with the Back Gate Solar Array field project at NASO.

Sincerely,
Mike
Michael Wright
Natural Resources Manager (NASO) DoD Partners in Flight Rep. (VA) Office: 757-433-3461

APPENDIX B FIGURES



2021 Survey Area
Oceana Switching Station Area
Parcel Boundary
SSURGO Soil Boundary

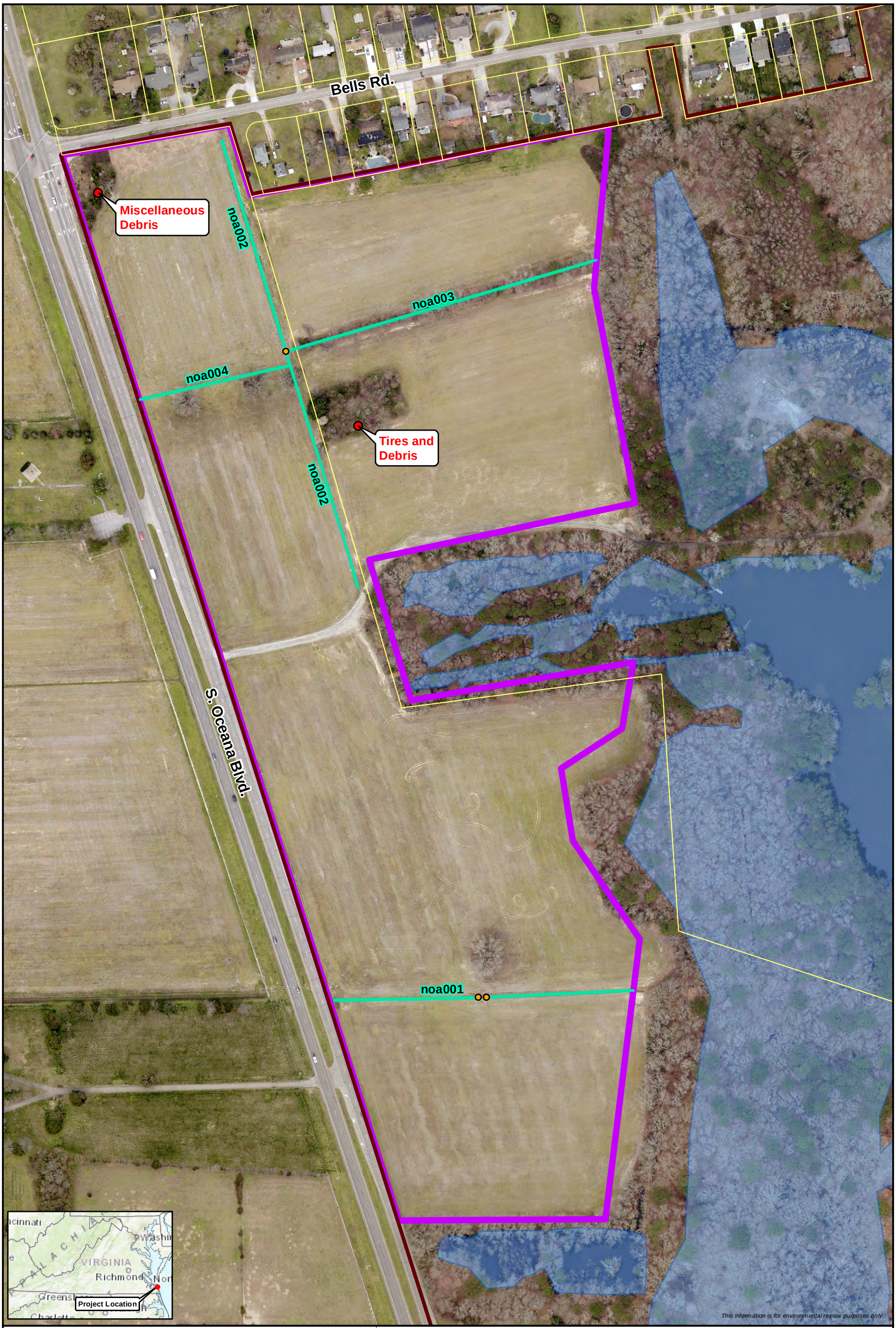
N
1:2,400
0 100 200 Feet

Figure 1
Coastal Virginia Offshore Wind Project
Dominion Virginia Power
Virginia Beach, VA
Oceana Switching Station Area Survey SSURGO Soils

ERM

Dominion Energy

MPLS M:\Clients\D-F\DOM\Offshore_Wind_ArcGIS\2021\01\Oceana_Surveys_DOM_CVOW_Oceana_Fig1_Soils.mxd | REVISED: 01/29/2021 | SCALE: 1:2,400 when printed at 11x17 DRAWN BY: 0239



2021 Survey Area
Oceana Switching Station Area
Parcel Boundary
2016 USACE PJD* Feature
Delineated Wetland
*PJD - Preliminary Jurisdiction Determination

ERM Delineated Features
Non-Jurisdictional Ditch
Debris
Culvert

1:2,400
0 100 200 Feet

Figure 2
Coastal Virginia Offshore Wind Project
Dominion Virginia Power
Virginia Beach, VA
Oceana Switching Station Area Survey Delineated Features

ERM
Dominion Energy

MPLS M:\Clients\D-F\DOM\Offshore_Wind_ArcGIS\2021\01\Oceana_Surveys_DOM_CVOW_Oceana_Fig2_Surveys.mxd | REVISED: 03/10/2021 | SCALE: 1:2,400 when printed at 11x17 DRAWN BY: 0239

APPENDIX C DATASHEETS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NAS Oceana City/County: Virginia Beach Sampling Date: 01/21/2021

Applicant/Owner: Dominion Energy State: VA Sampling Point: noa001

Investigator(s): T. Cimpi, Z. Bryant Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T Lat: 36.81389 N Long: -76.00483 W Datum: WGS84

Soil Map Unit Name: Munden fine sandy loam NWI classification:

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No hydrology, no hydrophytic vegetation, or hydric soils present. Restrictive layer at 4 inches due to drain tile likely for drainage of agricultural.

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: noa001

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Sapling/Shrub Stratum (Plot size: 15)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Herb Stratum (Plot size: 5)			
1. Barbarea verna	70	Y	UPL
2. Eleusine indica	30	N	FACU
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: 15)			
1. None			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	70	x 5 =	350
Column Totals:	100 (A)		470 (B)

Prevalence Index = B/A = 4.70

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).

SOIL

Sampling Point: noa001

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
0-4	10YR 3/4	100					Silt Loam	Restrictive layer at 4 inches.

[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: Drain tile

Depth (inches): 4.0 in

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

noa001



Facing East



Facing West

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NAS Oceana City/County: Virginia Beach Sampling Date: 01/21/2021

Applicant/Owner: Dominion Energy State: VA Sampling Point: noa002

Investigator(s): T. Cimpi, Z. Bryant Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T Lat: 36.81662 N Long: -76.00549 W Datum: WGS84

Soil Map Unit Name: Munden fine sandy loam NWI classification:

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No hydrology, no hydrophytic vegetation, or hydric soils present. Restrictive layer at 4 inches due to drain tile likely for drainage of agricultural.

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: noa002

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Sapling/Shrub Stratum (Plot size: 15)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Herb Stratum (Plot size: 5)			
1. Barbarea verna	65	Y	UPL
2. Eleusine indica	30	N	FACU
3. Rumex altissimus	5	N	FACW
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: 15)			
1. None			
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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	65	x 5 =	325
Column Totals:	100 (A)		455 (B)

Prevalence Index = B/A = 4.55

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).

SOIL

Sampling Point: noa002

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
0-4	10YR 3/4	100					SiltLoam	Restrictive layer at 4 inches.

[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: Drain tile

Depth (inches): 4.0 in

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Drain tile present at 4 inches likely due to draining Agricultural fields.

noa002



Facing North



Facing South

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NAS Oceana City/County: Virginia Beach Sampling Date: 01/21/2021

Applicant/Owner: Dominion Energy State: VA Sampling Point: noa003

Investigator(s): T. Cimpi, Z. Bryant Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T Lat: 36.81824 N Long: -76.00411 W Datum: WGS84

Soil Map Unit Name: Munden fine sandy loam NWI classification:

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No hydrology, no hydrophytic vegetation, or hydric soils present. Restrictive layer at 6 inches due to drain tile likely for drainage of agricultural.

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: noa003

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus virginiana	80	Y	FACU
2.			
3.			
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. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. Barbarea verna	30	Y	UPL
2. Eleusine indica	25	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Woody Vine Stratum (Plot size: 15)			
1. None			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	105	x 4 =	420
UPL species	30	x 5 =	150
Column Totals:	135 (A)		570 (B)

Prevalence Index = B/A = 4.22

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).

SOIL

Sampling Point: noa003

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	10YR 4/3	100					SiltLoam	Restrictive layer at 6 inches.

[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: Drain tile

Depth (inches): 6.0 in

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Drain tile present at 6 inches likely due to draining Agricultural fields.

noa003



Facing East



Facing West

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NAS Oceana City/County: Virginia Beach Sampling Date: 01/21/2021

Applicant/Owner: Dominion Energy State: VA Sampling Point: noa004

Investigator(s): T. Cimpi, Z. Bryant Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T Lat: 36.81776 N Long: -76.00599 W Datum: WGS84

Soil Map Unit Name: Munden fine sandy loam NWI classification:

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No hydrology, no hydrophytic vegetation, or hydric soils present. Restrictive layer at 4 inches due to drain tile likely for drainage of agricultural.

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: noa004

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Sapling/Shrub Stratum (Plot size: 15)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Herb Stratum (Plot size: 5)			
1. Barbarea verna	65	Y	UPL
2. Eleusine indica	30	N	FACU
3. Rumex altissimus	5	N	FACW
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: 15)			
1. None			
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: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	65	x 5 =	325
Column Totals:	100 (A)		455 (B)

Prevalence Index = B/A = 4.55

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).

SOIL

Sampling Point: noa004

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
0-4	10YR 3/4	100					SiltLoam	Restrictive layer at 4 inches.

[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: Drain tile

Depth (inches): 4.0 in

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Drain tile present at 4 inches likely due to draining Agricultural fields.

noa004



Facing East



Facing West

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NAS Oceana City/County: Virginia Beach Sampling Date: 01/21/2021

Applicant/Owner: Dominion Energy State: VA Sampling Point: noa005

Investigator(s): T. Cimpi, Z. Bryant Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T Lat: 36.81893 Long: -76.00737 Datum: WGS84

Soil Map Unit Name: Munden fine sandy loam NWI classification:

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

No hydrology, no hydrophytic vegetation, or hydric soils present.

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: noa005

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling/Shrub Stratum (Plot size: 15)			
1. Elaeagnus umbellata	40	Y	UPL
2. Juniperus communis	30	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Herb Stratum (Plot size: 5)			
1. Schedonorus pratensis	25	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Woody Vine Stratum (Plot size: 15)			
1. None			
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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.33333 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	55	x 4 =	220
UPL species	40	x 5 =	200
Column Totals:	105 (A)		440 (B)

Prevalence Index = B/A = 4.19

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).

SOIL

Sampling Point: noa005

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
0-16	10YR 4/4	100					SiltLoam	

[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): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Small depression near road side with household debris, trash, pieces of concrete/asphalt, and cement medians perimeter near the road. Vegetation in this area includes autumn olive, which is an indicator of a disturbed area and doesn't have a wetland indicator status.

ERM has over 160 offices across the following countries and territories worldwide

Argentina
Australia
Belgium
Brazil
Canada
China
Colombia
France
Germany
Hong Kong
Hungary
India
Indonesia
Ireland
Italy
Japan
Kazakhstan
Kenya
Malaysia
Mexico
Myanmar
The Netherlands
New Zealand
Norway
Panama
Peru
Poland
Portugal
Puerto Rico
Romania
Russia
Singapore
South Africa
South Korea
Spain
Sweden
Switzerland
Taiwan
Thailand
UAE
UK
US
Vietnam

ERM
180 Admiral Cochran Drive
Suite 400
Annapolis, MD 21401

www.erm.com

The business of sustainability

ERM

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

June 23, 2021

NOTIFICATION OF APPROVED JURISDICTIONAL DETERMINATION

Eastern Virginia Regulatory Section
NAO-2021-01006

Requestor: Mr. Robert (Bob) Bisha
Address: 120 Tredegar Street
Richmond, Virginia 23219

Property Owner (if different from Requestor): Commanding Officer, Naval Air Station Oceana, Address: c/o Blake Waller, Department of the Navy, Naval Air Station Oceana, 1750 Tomcat BLVD, Virginia Beach, VA 23460

PROPERTY/PROJECT/EVALUATION AREA INFORMATION

Size (acres): 42 Town/County: Virginia Beach
Nearest Waterway: Owls Creek Latitude: 36.81776
USGS HUC: 02040304 Longitude: -76.005599
Location Description: 42 acre farm field south of Bells Mill Road, East of Oceana Blvd in Virginia Beach.

Jurisdictional Wetlands (acres): 0

Jurisdictional Streams (linear feet): 0

A. DETERMINATION

On April 13, 2021, the U.S. Army Corps of Engineers (Corps) received your request for an approved jurisdictional determination for the above-described area. Based upon an office (desktop) evaluation, 33 CFR 329 - Definition of Navigable Waters of the United States, and 33 CFR 328 - Definition of Waters of the United States and federal regulations of navigable waters, the Corps determines:

The above-described area is comprised entirely of uplands. The Corps did not identify any waters regulated under Section 404 of the Clean Water Act (33 U.S.C. 1344), or Section 10 of the Rivers and Harbors Act (33 U.S.C. 403).

The delineation included herein has been conducted to identify the location and extent of the water boundaries and the jurisdictional status of the waters for purposes of the CWA and RHA for the above-described area identified in this request.

This delineation and jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. Therefore, if you or your tenant are US Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

B. ADMINISTRATIVE APPEALS INFORMATION

This notification constitutes an approved jurisdictional determination for the above-described area. If you object to this determination, you may request an administrative appeal under the Corps regulations (33 CFR Part 331). Please find the enclosed Notification of Appeal Options and Process (NAP) and Request for Appeal (RFA). If you request to appeal this determination, you must submit a completed RFA to the following address:

Attn: Ms. Naomi J. Handell, Regulatory Program Manager
United States Army Corps of Engineers
CENAD-PD-OR
Fort Hamilton Military Community
301 General Lee Avenue
Brooklyn, New York 11252-6700

The Corps will determine whether the RFA is complete and meets the criteria for appeal under 33 CFR 331.5. The RFA must be received at the above address within 60 days of the NAP, and by August 23, 2021. The Corps will not accept incomplete or late RFAs. You do not need to submit an RFA if you do not object to the approved jurisdictional determination.

C. EXPIRATION DATE

This approved jurisdictional determination is valid for five years from the date of this notification unless new information warrants revision prior to the expiration date.

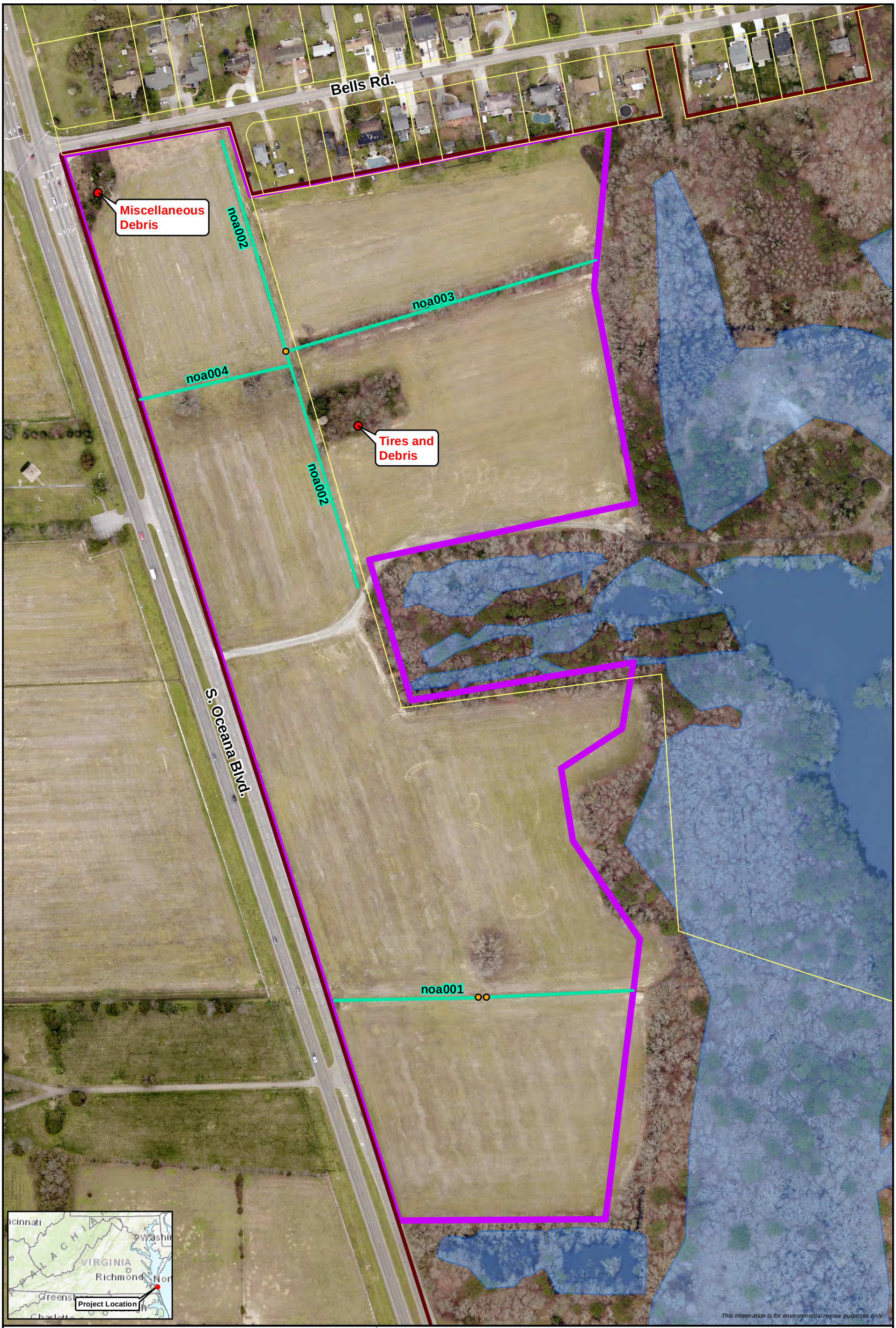
If you have any questions regarding this notification, please contact Brian Denson via telephone at (757) 201-7792 or via email at Brian.C.Denson@usace.army.mil.



Brian Denson
Environmental Scientist
Norfolk District Regulatory Branch

Enclosure(s): Map of review area, Administrative Appeals Form, AJD Form

Received by USACE NAO by DGM April 13, 2021



2021 Survey Area
Oceana Switching Station Area
Parcel Boundary
2016 USACE PJD* Feature
Delineated Wetland
*PJD - Preliminary Jurisdiction Determination

ERM Delineated Features
Non-Jurisdictional Ditch
Debris
Culvert

1:2,400
0 100 200 Feet

Figure 2
Coastal Virginia Offshore Wind Project
Dominion Virginia Power
Virginia Beach, VA
Oceana Switching Station Area Survey Delineated Features

ERM
Dominion Energy

MPLS M:\Clients\D-F\DOM\Offshore_Wind_ArcGIS\2021\01\Oceana_Surveys_DOM_CVOW_Oceana_Fig2_Surveys.mxd | REVISED: 03/10/2021 | SCALE: 1:2,400 when printed at 11x17 DRAWN BY: 0239

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 23-JUN-2021
ORM Number: NAO-2021-01006
Associated JDs: N/A or ORM numbers and identifiers (e.g. HQS-2020-00001-MSW-MITSITE)
Review Area Location[1]:
State/Territory: VA City: County/Parish/Borough: Virginia Beach city
Center Coordinates of Review Area: Latitude 36.81776 Longitude -76.005599

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☒ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: Site is comprised entirely of non hydric soils, including the ditch bottoms. There is no evidence of hydrology during the growing season and the vegetation onsite is dominated by non-hydrophytic species.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in section II.B).
- ☐ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in section II.C).
- ☐ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
N/A	N/A	N/A	N/A

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters)[3]

(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
N/A	N/A	N/A	N/A

Tributaries ((a)(2) waters):

(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
N/A	N/A	N/A	N/A

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):

(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
N/A	N/A	N/A	N/A

Adjacent wetlands ((a)(4) waters):

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
N/A	N/A	N/A	N/A

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12))[4]:

Exclusion Name	Exclusion Size	Exclusion[5]	Rationale for Exclusion Determination
N/A	N/A	N/A	N/A

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

_X_ Information submitted by, or on behalf of, the applicant/consultant: "Figure 2, Coastal Virginia Offshore Wind Project, Dominion Virginia Power, Virginia Beach, VA, Oceana Switching Station Area Survey Delineated Features" dated REVISED: 03/10/2021.
This information is sufficient for purposes of this AJD.
Rationale: *N/A*

___ Data sheets prepared by the Corps: *Title(s) and/or date(s).*

_X_ Photographs: *Google Earth, VGIN, Onsite photos taken by consultant*

___ Corps Site visit(s) conducted on: *Date(s).*

__X Previous Jurisdictional Determinations (AJDs or PJDs): *NAO-2008-2946, May 11, 2016*

__X Antecedent Precipitation Tool: *provide detailed discussion in Section III.B.*

_X_ USDA NRCS Soil Survey: *Title(s) and/or date(s).*

_X_ USFWS NWI maps: *Title(s) and/or date(s).*

_X_ USGS topographic maps: *Title(s) and/or date(s).*

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A.
Other Sources	N/A.

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

B. Typical year assessment(s): The APT tool shows the area was wetter than normal during data collection. During this period of wetter than normal, the site showed no indicators of hydrology.

C. Additional comments to support AJD: Site is comprised entirely of non hydric soils, including the ditch bottoms. There is no evidence of hydrology during the growing season and the vegetation onsite is dominated by non hydrophytic species.

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Bob Bisha, Dominion Energy Services	File Number: NAO-2021-1006	Date: 6/23/2021
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/appeals.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact: Ms. Naomi J. Handell Regulatory Program Manager (CENAD-PD-OR) U.S. Army Corps of Engineers Fort Hamilton Military Community 301 General Lee Avenue Brooklyn, New York 11252-6700 Telephone number: (917) 789-4841 Naomi.J.Handell@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

CVOW – Harpers to Fentress Property

TETRA TECH

July 15, 2022

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Subject: [Supplemental Filing] Request for Preliminary Jurisdictional Determination, Harpers to Fentress Substation
Start: 76.0229703°W 36.7956552°N
End: 76.1884057°W 36.6888348°N

To Whom It May Concern,

Tetra Tech, Inc. (Tetra Tech) has been retained by Virginia Electric and Power Company, doing business as Dominion Energy Virginia (Dominion Energy) to conduct a field investigation/verification of wetlands and waters of the U.S. (WOTUS) on the Coastal Virginia Offshore Wind Commercial Project (Project). Dominion Energy is conducting an evaluation of the Project area between the Cable Landing Location in the City of Virginia Beach and the final connection point, Fentress Substation, in the City of Chesapeake. The investigation described herein and the commensurate Preliminary Jurisdictional Determination (PJD), have been split into three components that include the following: 1) State Military Reservation (SMR) and Former Naval Air Station (NAS) Oceana South Virginia Beach Annex, 2) Navy owned property (NAS Oceana) that does not include the NAS Oceana South Virginia Beach Annex, and 3) the linear routing from NAS Oceana to Fentress Substation (Harpers to Fentress). This report highlights the findings of the investigation associated with the linear routing from Harpers to Fentress (Component 3). These findings include a request for reverification of the mapping associated with the Approved Jurisdictional Determination (AJD) NAO-2018-01177 (Bedford) within the Project Area. PJD NAO-2021-0371 (VEPCO) is provided as reference but is not included in this request.

The approximate 346.99-acre study area is located within the Albemarle-Chowan drainage basin in Virginia Beach, Virginia and the City of Chesapeake, Virginia. Features were identified and delineated using the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain (Version 2.0)*. Where appropriate, aquatic resources were mapped via flagging and located with sub-meter GPS receivers. The data sheets/photologs used in this determination are attached along with the delineation mapbook showing the mapped aquatic resources and corresponding datapoints.

On behalf of Dominion Energy, Tetra Tech is submitting this information to the U.S. Army Corps of Engineers (USACE) for their review and approval for issuance of a PJD. To assist the entities involved with the review and approval of this delineation, please find enclosed the PJD Request Form (Appendix A), Wetland Delineation Report Site Summary (Appendix B), Figures and Mapbook (Appendix C), Data Sheets and Photologs (Appendix D), and Previous Delineation Reports (Appendix E). Upon review, Tetra Tech staff would be pleased to meet with USACE onsite to review the information provided, as necessary. Please contact James Cook for any requests related to this matter.

Respectfully submitted,



Tetra Tech, Inc.
4433 Corporation Lane, Suite 300. Virginia Beach, VA 23462
Tel 540-841-4752 Fax 757-461-4148 tetratech.com

James Cook, PWS
Environmental Scientist
Email: james.cook@tetratech.com

Enclosure

CC Rachel Studebaker – Dominion Energy
Janelle Lavallee – Tetra Tech
Nathalie Schils – Tetra Tech

Appendices:

- Appendix A: Preliminary Jurisdictional Determination Request Form
- Appendix B: Wetland Delineation Report Site Summary
- Appendix C: Figures and Mapbook
  - Figure 1: Overall Site Map (USGS Topo)
  - Figure 2: Delineation Mapbook
  - Figure 3: NWI Mapbook
- Appendix D: Data Sheets and Photolog
  - Appendix D-1: Stream Data Sheets and Photolog
  - Appendix D-2: Wetland Data Sheets and Photolog
- Appendix E. Previous Delineation Reports
  - Appendix E-1: NAO-2021-0371 VEPCO PJD
  - Appendix E-2: NAO-2018-01177 Bedford AJD

APPENDIX A: PRELIMINARY JURISDICTIONAL DETERMINATION REQUEST FORM

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: July 2022
2. Project Name: CVOW - Harpers to Fentress Property
3. City or County where property located: Cities of Virginia Beach and Chesapeake
4. Address of property and directions (attach a map of the property location and a copy of the property plat): The site is situated south of Harpers Road and runs generally west-southwest to the existing Fentress Substation located off Fentress Loop in the City of Chesapeake. The site can be accessed from Harpers Road, Dam Neck Road, London Bridge Road, Holland Road, Princess Anne Road, Landstown Road, Salem Road, Indian River Road, Elbow Road, Mt. Pleasant Road, Blue Ridge Road, Whittamore Road, and Centerville Turnpike S.
5. Coordinates of property (if known): Start: 76.0229703°W 36.7956552°N End: 76.1884057°W 36.6888348°N
6. Size of property in acres: 346.99
7. Tax Parcel Number / GPIN (if available):
8. Name of Nearest Waterway: West Neck Creek, North Landing River, Intracoastal Waterway

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:
   Environmental Constraints Analysis

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☒ YES ☐ NO ☐ UNKNOWN

    If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available: ERM - approved by Dan Bacon NAO-2021-0371
    RES - approved by Audrey Cotnoir NAO-2018-01177

Property Owner Contact Information:

Property Owner Name: Various - legal rights of entry are secured for access to the right-of-way (ROW).
Mailing Address:
City: State: Zip: The majority of the project area is associated with existing transmission line ROW managed and maintained by Virginia Electric and Power Company d/b/a Dominion Energy Virginia (c/o Kevin Fields)
Daytime Telephone:
E-mail Address:

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Kevin Fields - Virginia Electric and Power Company
Mailing Address: 10900 Nuckols Road, 4th Floor
City: State: Zip: Glen Allen, Virginia 23060
Daytime Telephone: 804-771-3769
E-mail Address: ET.Environmental@dominionenergy.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:



Property Owner's Signature

07/15/2022

Date

APPENDIX B: WETLAND DELINEATION REPORT SITE SUMMARY

Wetland Delineation Report Site Information Summary
Coastal Virginia Offshore Wind Commercial Project
Harpers to Fentress Substation Delineation
Multiple Parcels (346.99)
Virginia Beach and City of Chesapeake, Virginia

Date
July 15, 2022

Latitude/ Longitude in Decimal Degrees using coordinate plane (NAD 1983)
Start: 76.0229703°W 36.7956552°N
End: 76.1884057°W 36.6888348°N

Has a previous delineation or JD been performed? If so, please provide USACE Project Number: NAO-2021-0371 (VEPCO PJD, not being updated, included for reference only), NAO-2018-01177 (Bedford AJD, included for reverification)

Hydrologic Unit Code (HUC)
03010205 – Albemarle

USGS Topographic Sheet
Princess Anne Quadrangle, 2019 (7.5 Minute Series), Pleasant Ridge Quadrangle, 2019 (7.5 Minute Series), and Fentress Quadrangle, 2019 (7.5 Minute Series)

Nearest Waterbody (example given)
The project area intersects West Neck Creek (76.0558949°W 36.7702775°N), the North Landing River (76.1123446°W 36.7561374°N, 76.1198744°W 36.7523690°N, 76.1308757°W 36.7471880°N), and the Intracoastal Waterway (76.1641980°W 36.7235195°N).

Delineation Methods
Features were identified and delineated using the Routine Determination Method as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* and methods described in the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain (Version 2.0)*. The 2021 National Wetland Plant List was used for this delineation.

On-Site Investigation Date
Wetland boundary delineation and site data collection was conducted between early 2021 and 2022.

Wetland Delineation Plan
The proposed wetland boundaries and data sampling point locations are depicted on the plan entitled Figure 2. Coastal Virginia Offshore Wind Project, Delineation Mapbook: Harpers to Fentress PJD, prepared by Tetra Tech Offshore Wind Group on 07/07/2022.

Wetland Investigation Results

Wetlands: A total of approximately 100.64 acres of wetlands were found within the 346.99-acre project area during the investigation. Of the total proposed wetland area, approximately 28.28 acres are palustrine forested (PFO) wetlands, 0.18 acre is palustrine scrub shrub (PSS), 71.27 acres are palustrine emergent (PEM) wetlands, and 0.91 acre is estuarine tidal wetlands (E2EM). Representative datasheets can be found in Appendix D and Appendix E-2. JC_W_1006_PFO and JC_W_1006_PEM do not have a representative datasheet due to lack of accessibility (barred on the north by ED_S_02 and private property on the south, east, and west).

Stream Channels: Thirty-five (35) streams were mapped within the project area. These streams vary in size and regime, including ephemeral, intermittent, perennial, and Section 10 waters. Additionally, multiple crossings have been determined to exceed 5 square miles of drainage area. Stream datasheets can be found in Appendix D. JC_S_001, JC_S_003, JC_S_009 do not have datasheets on account of not being physically accessible.

Other Waters: Numerous ditches were mapped throughout the survey area. Based on professional judgment and assessment of morphology, the majority of these ditches are ephemeral, while six ditches (EF_D_002, EF_D_004, EF_D_013, EF_D_2001, KH_D_002, and TC_D_1001) are intermittent unnamed tributaries. This determination is subject to review by the USACE. Datasheets for all ditches are provided in Appendix D and Appendix E.

Water bodies onsite identified as Section 10: The project crosses multiple Section 10 waters. These include the Intracoastal Waterway (76.1641980°W 36.7235195°N) and the North Landing River (76.1198744°W 36.7523690°N). Additionally, a number of stormwater features were mapped within the project LOD (JD_WB_001, KH_WB_009, ED_P_001). These features are spatially located but do not have corresponding datasheets.

Uplands: Approximately 246.35 acres of the project area were classified as upland. Representative datasheets can be found in Appendix D and show general site characteristics for these upland areas. Additionally, previous delineation reports (Appendix E) include additional upland points and corresponding datasheets.

100-Year Floodplain

As depicted on the Federal Emergency Management Agency's (FEMA's) on-line Flood Insurance Rate Maps #5155310117F (5/4/2009), #5155310119G (1/16/2015), 5155310118F (5/4/2009), #5155310114F (5/4/2009), #5155310113F (5/4/2009), #5155310180G (1/16/2015), #5100340041D (2/16/2014), #5100340040D (12/16/2014), #5100340053D (12/16/2014), #5100340067D (12/16/2014), and #5100340052D (12/16/2014); the project area lies within Zone X, areas of minimal flood hazard; Zone AE, base flood elevation and 100-year floodplain and regulatory floodway; and Zone A, area within 100-year floodplain.

National Wetlands Inventory

The online National Wetland Inventory (Appendix C, Figure 3) identified wetlands throughout the project area, largely in association with the above-mentioned waterbodies/waterways and active drainage areas.

USDA Soil Survey
The on-line USDA Natural Resource Conservation Service Soil Survey – SSURGO (Appendix C, Figure 2) identifies the following soils within the project area:

Table 1. SSURGO NRCS Soil Survey – Soil Series within Project Area

Reference #	Soil Series	Acreage
1 (Virginia Beach)	Acredale silt loam	83.99
1 (Chesapeake)	Acredale silt loam, 0 to 1 percent slopes	43.95
2 (Chesapeake)	Acredale-Chapanoke complex, 0 to 1 percent slopes	10.39
6 (Virginia Beach)	Beaches	0.07
15 (Chesapeake)	Deloss mucky fine sandy loam, 0 to 1 percent slopes	2.87
16 (Chesapeake)	Deloss-Tomotley-Nimmo complex, 0 to 1 percent slopes	27.34
18 (Chesapeake)	Dorovan-Belhaven complex, 0 to 1 percent slopes, frequently flooded	29.99
13 (Virginia Beach)	Dragston fine sandy loam	1.09
20 (Chesapeake)	Dragston-Tomotley complex, 0 to 2 percent slopes	0.34
23 (Chesapeake)	Gertie silt loam, 0 to 1 percent slopes	1.52
25 (Chesapeake)	Munden fine sandy loam, 0 to 2 percent slopes	1.92
26C (Chesapeake)	Munden loamy fine sand, 2 to 8 percent slopes	0.93
21 (Virginia Beach)	Nawney silt loam	23.14
30 (Chesapeake)	Nawney silt loam, 0 to 1 percent slopes, frequently flooded	0.17
24 (Virginia Beach)	Nimmo loam	36.55
35C (Chesapeake)	Psamments, 0 to 10 percent slopes	9.03
32 (Virginia Beach)	Rappahannock mucky peat, strongly saline	0.87
33E (Virginia Beach)	Rumford fine sandy loam, 6 to 35 percent slopes	1.29
38 (Virginia Beach)	Tomotley loam	35.86
42 (Chesapeake)	Tomotley-Bertie complex, 0 to 2 percent slopes	7.74
44 (Chesapeake)	Tomotley-Deloss complex, 0 to 1 percent slopes	1.11
45 (Chesapeake)	Tomotley-Nimmo complex, 0 to 1 percent slopes	24.82
39 (Virginia Beach)	Tomotley-Urban land complex	0.23
49 (Chesapeake)	Udorthents-Urban land complex, 0 to 45 percent slopes	0.06
W (Virginia Beach)	Water	1.22
43 (Virginia Beach)	Yeopim silt loam	0.49

Notes:
Portions of the project area are covered under a previous AJD that was approved in 2021 (Appendix E-2 NAO-2021-0371). However, in recognition of this AJD being approved under a previously rescinded WOTUS definition, we are requesting a reverification of this AJD under the PJD and have included additional mapping that is subject to jurisdiction under a PJD.

Additionally, Appendix E-1 (NAO-2021-0371) is provided as reference for the ongoing project. At this time, reverification of the VEPCO NAO-2021-0371 delineation is not being sought as part of this PJD.

Waters Table:
Table 2 provides a summary of all mapped wetlands within the project area from Harpers to Fentress Substation. Summaries of the streams and ditches that were identified within the project area from Harpers to Fentress Substation are provided in Table 3 and Table 4, respectively.

Table 2. Wetlands Identified in the Project Area

Wetland ID	County	Latitude[1]	Longitude[1]	Cowardin Class[2]	HGM[3]	Water Type[4]	Size (Acres)[5]	Size (square feet)[5]	Open/Closed Boundary	Mapbook Page #
ED_W_001	Chesapeake	36.686679	-76.17633	PEM	Depressional	RPWWN	7.701	335,470.319	Open	41,42
ED_W_001B	Chesapeake	36.686679	-76.17633	PEM	Depressional	RPWWN	0.278	12,095.874	Open	41
ED_W_1001	Chesapeake	36.691775	-76.191623	PEM	Depressional	RPWWN	0.211	9,177.063	Closed	44
ED_W_1002	Chesapeake	36.691853	-76.192901	PEM	Depressional	RPWWN	0.051	2,215.718	Closed	44
EF_W_001_PEM	Chesapeake	36.720743	-76.166526	PEM	Riverine	RPWWD	4.513	196,589.822	Open	31,35
EF_W_001_PFO	Chesapeake	36.720139	-76.166496	PFO	Riverine	RPWWD	0.003	139.914	Open	31,35
EF_W_002	Chesapeake	36.718323	-76.167437	PEM	Riverine	RPWWD	1.587	69,145.390	Open	35
EF_W_003	Chesapeake	36.713501	-76.168334	PEM	Depressional	RPWWD	0.109	4,738.091	Open	36
EF_W_004	Chesapeake	36.700803	-76.169973	PEM	Depressional	RPWWN	0.147	6,410.859	Open	38
EF_W_005	Chesapeake	36.701230	-76.169645	PEM	Depressional	RPWWN	0.051	2,203.448	Open	38
EF_W_006	Chesapeake	36.701516	-76.170189	PEM	Depressional	RPWWN	0.320	13,927.411	Open	38
EF_W_008_PEM	Chesapeake	36.741368	-76.143535	PEM	Slope	TNWW	30.867	1,344,579.698	Open	26,27,28,29,30,31
EF_W_008_PFO	Chesapeake	36.74137	-76.143621	PFO	Slope	TNWW	8.353	363,858.712	Open	26,28,29,30,31
EF_W_009_PEM	Chesapeake	36.746099	-76.133218	PEM	Slope	RPWWN	0.343	14,961.364	Closed	24,25
EF_W_009_PFO	Chesapeake	36.745640	-76.133588	PFO	Slope	RPWWN	0.190	8,286.344	Open	24,25
EF_W_013	Virginia Beach	36.770597	-76.064658	PEM	Depressional	RPWWN	0.418	18,193.606	Closed	14
EF_W_1001	Virginia Beach	36.752653	-76.119087	PFO	Riverine	RPWWD	0.203	8,861.760	Open	22,23
EF_W_1002	Virginia Beach	36.752729	-76.119519	PEM	Riverine	RPWWD	0.729	31,753.913	Open	22,23
EF_W_1003	Chesapeake	36.694406	-76.17097	PEM	Depressional	RPWWD	0.046	1,997.816	Open	39,40
EF_W_2008	Virginia Beach	36.768251	-76.079597	PEM	Depressional	RPWWN	0.061	2,645.816	Closed	17
EF_W_201	Chesapeake	36.724580	-76.168150	PFO	Riverine	RPWWD	0.203	8,829.360	Open	31,32
JA_W_002B_PEM	Chesapeake	36.746696	-76.132299	PEM	Riverine	RPWWD	3.683	160,440.641	Open	24,25
JA_W_002B_PFO	Chesapeake	36.746696	-76.1323	PFO	Riverine	RPWWN	0.909	39,597.072	Open	24,25
JA_W_003B	Virginia Beach	36.754898	-76.115031	PEM	Depressional	RPWWD	0.014	611.144	Open	22
JA_W_004	Chesapeake	36.690605	-76.171499	PEM	Depressional	RPWWN	3.842	167,367.545	Open	40,41

Table 2. Wetlands Identified in the Project Area

Wetland ID	County	Latitude[1]	Longitude[1]	Cowardin Class[2]	HGM[3]	Water Type[4]	Size (Acres)[5]	Size (square feet)[5]	Open/Closed Boundary	Mapbook Page #
JA_W_004B	Virginia Beach	36.755767	-76.112795	PEM	Depressional	RPWWN	1.007	43,868.849	Open	21,22
JA_W_005	Chesapeake	36.724756	-76.175019	PFO	Depressional	RPWWD	0.142	6,175.155	Open	32
JA_W_005B	Virginia Beach	36.786254	-76.022425	PFO	Depressional	RPWWN	0.130	5,682.794	Closed	6
JA_W_006	Chesapeake	36.725099	-76.18053	PFO	Slope	RPWWD	0.108	4,714.794	Open	33
JA_W_007	Chesapeake	36.724270	-76.185828	PFO	Depressional	RPWWD	0.131	5,712.333	Open	33,34
JA_W_007B	Chesapeake	36.715644	-76167686	PEM	Depressional	NRPWW	0.003	109.600	Closed	35,36
JA_W_008	Chesapeake	36.724270	-76.185828	PFO	Depressional	RPWWD	0.003	141.721	Open	33
JA_W_008B_PEM	Virginia Beach	36.751974	-76.120886	PEM	Riverine	RPWWD	1.173	51,111.740	Open	23
JA_W_008B_PFO	Virginia Beach	36.751743	-76.120962	PFO	Riverine	RPWWD	0.358	15,500.944	Open	23
JA_W_009	Chesapeake	36.724599	-76.182787	PFO	Depressional	RPWWN	0.191	8,339.344	Open	33
JA_W_009B	Virginia Beach	36.770121	-76.054535	PFO	Depressional	RPWWN	0.3164	13,782.905	Open	12
JA_W_009B-1	Virginia Beach	36.770283	-76.055116	PEM	Depressional	RPWWN	0.094	4,115.620	Open	12
JA_W_010	Virginia Beach	36.793629	-76.020685	PEM	Depressional	RPWWN	1.502	65,412.775	Open	3,4,5
JA_W_010B_PEM	Virginia Beach	36.770244	-76.052857	PEM	Depressional	RPWWN	0.365	15,881.710	Open	12
JA_W_010B_PFO	Virginia Beach	36.770037	-76.052984	PFO	Depressional	RPWWN	0.658	28.651.253	Open	12
JA_W_011	Virginia Beach	36.794520	-76.021341	PEM	Depressional	RPWWN	0.020	861.531	Open	3
JA_W_012	Virginia Beach	36.793968	-76.020647	PEM	Depressional	RPWWN	0.042	1,819.396	Open	3,4
JC_W_101	Virginia Beach	36.800897	-76.004191	PEM	Depressional	RPWWN	0.020	697.510	Open	2
JC_W_1002	Virginia Beach	36.756905	-76.110398	PEM	Slope	RPWWN	0.147	6,407.777	Closed	21
JC_W_1003_PEM	Virginia Beach	36.758177	-76.107704	PEM	Slope	RPWWN	1.344	58,545.663	Open	21
JC_W_1003_PFO	Virginia Beach	36.758217	-76.108507	PFO	Slope	RPWWD	0.211	9,191.330	Open	21
JC_W_1004_PEM	Virginia Beach	36.759093	-76.106688	PEM	Slope	RPWWN	0.258	11,253.380	Open	21
JC_W_1005_PEM	Virginia Beach	36.759156	-76.105782	PEM	Slope	RPWWD	0.905	39,435.481	Open	20,21
JC_W_1005_PFO	Virginia Beach	36.759352	-76.106138	PFO	Depressional	RPWWD	0.178	7,744.797	Open	20,21
JC_W_1006_PEM	Chesapeake	36.686195	-76.172258	PEM	Depressional	RPWWN	1.498	65,267.018	Open	41

Table 2. Wetlands Identified in the Project Area

Wetland ID	County	Latitude[1]	Longitude[1]	Cowardin Class[2]	HGM[3]	Water Type[4]	Size (Acres)[5]	Size (square feet)[5]	Open/Closed Boundary	Mapbook Page #
JC_W_1006_PFO	Chesapeake	36.686453	-76.172526	PFO	Depressional	RPWWD	0.420	18,278.127	Open	41
Jcros_W_010_PEM	Virginia Beach	36.770091	-76.060630	PEM	Riverine	RPWWD	2.238	97,508.316	Open	12,14
Jcros_W_010_PFO	Virginia Beach	36.770091	-76.060630	PFO	Riverine	RPWWD	7.217	314,358.200	Open	12,14
Jcross_DW_012	Virginia Beach	36.791165	-76.019726	PEM	Depression	RPWWN	0.192	8,357.979	Open	4,5
Jcross_DW_013	Virginia Beach	36.791105	-76.020405	PEM	Depression	RPWWN	0.140	6,091.105	Open	5
JD_W_004	Chesapeake	36.742982	-76.139637	PEM	Slope	RPWWD	0.259	11,264.646	Closed	26
JD_W_005	Chesapeake	36.744654	-76.136382	PEM	Slope	RPWWD	1.646	71,720.580	Closed	25
JD_W_006	Chesapeake	36.747150	-76.132314	PFO	Riverine	RPWWD	0.000	5.546	Open	24,25
JD_W_019	Virginia Beach	36.817835	-75.986478	E2EM	Lacustrine	RPWWD	0.910	39,634.223	Open	1
JD_W_023_PEM	Virginia Beach	36.770347	-76.051416	PEM	Slope	RPWWD	1.903	82,898.625	Open	11,12
JD_W_023_PFO	Virginia Beach	36.770590	-76.051505	PFO	Slope	RPWWD	0.302	13,145.273	Open	11,12
KH_W_007	Chesapeake	36.703987	-76.169445	PEM	Depressional	RPWWN	0.009	400.213	Closed	38
KH_W_008	Chesapeake	36.710423	-76.16867	PEM	Depressional	RPWWN	0.275	11,958.019	Closed	36,37
KH_W_02	Virginia Beach	36.748418	-76.149530	PEM	Slope	RPWWN	0.047	2,038.650	Closed	27
KH_W_06	Chesapeake	36.703430	-76.169311	PFO	Depressional	RPWWD	0.062	2,687.574	Open	38
RD_W_001	Virginia Beach	36.769935	-76.039152	PEM	Slope	RPWWN	0.309	13,481.736	Open	10
RD_W_002	Virginia Beach	36.772899	-76.034937	PEM	Slope	RPWWN	0.056	2,420.867	Open	9
RD_W_003	Virginia Beach	36.770187	-76.042015	PEM	Slope	RPWWN	0.164	7,141.425	Closed	10
RD_W_004	Virginia Beach	36.770044	-76.040541	PEM	Slope	RPWWN	0.066	2,891.720	Closed	10
RD_W_005_PEM	Virginia Beach	36.770154	-76.062632	PEM	Slope	RPWWN	0.028	1,227.062	Closed	14
RD_W_005_PFO	Virginia Beach	36.770336	-76.062122	PFO	Slope	RPWWD	0.729	31,735.785	Closed	14
RD_W_006	Virginia Beach	36.770372	-76.062151	PEM	Slope	RPWWN	0.199	8,680.398	Closed	14
RD_W_007	Virginia Beach	36.770115	-76.061667	PEM	Depressional	RPWWN	0.014	596.075	Closed	14
RD_W_008	Virginia Beach	36.770356	-76.063256	PEM	Slope	RPWWN	0.010	416.132	Closed	14
RD_W_009	Virginia Beach	36.776442	-76.031103	PEM	Slope	RPWWN	0.007	312.892	Closed	11
RD_W_010	Virginia Beach	36.770363	-76.068686	PEM	Slope	RPWWN	0.577	25,123.263	Open	14,15
RD_W_011	Virginia Beach	36.770314	-76.048240	PFO	Slope	RPWWN	0.241	10,516.057	Closed	11
TC_W_001	Virginia Beach	36.768736	-76.073144	PEM	Depressional	RPWWN	0.216	9,392.906	Open	15

Table 2. Wetlands Identified in the Project Area

Wetland ID	County	Latitude[1]	Longitude[1]	Cowardin Class[2]	HGM[3]	Water Type[4]	Size (Acres)[5]	Size (square feet)[5]	Open/Closed Boundary	Mapbook Page #
TC_W_003	Virginia Beach	36.771410	-76.053861	PSS	Depressional	RPWWN	0.139	6,063.399	Closed	12,13
TC_W_004	Virginia Beach	36.171775	-76.053588	PSS	Depressional	RPWWN	0.040	1,754.102	Closed	12,13
TC_W_005	Virginia Beach	36.774325	-76.033187	PEM	Depressional	RPWWN	0.011	474.769	Closed	9
VEPCO-W-1	Chesapeake	36.691788	-76.187849	PEM	Slope	RPWWN	1.098	47,841.054	Open	44
VEPCO-W-2	Chesapeake	36.692157	-76.19249	PFO	Depressional	RPWWD	2.647	115,292.619	Open	43,44
VEPCO-W-3	Chesapeake	36.691986	-76.190551	PFO	Depressional	RPWWN	1.894	82,492.414	Open	44
VEPCO-W-4	Chesapeake	36.691807	-76.191644	PEM	Depressional	RPWWD	1.350	58,785.062	Open	44
VEPCO-W-4	Chesapeake	36.691483	-76.187849	PEM	Depressional	RPWWN	0.125	5,443.885	Open	44
VEPCO-W-6	Chesapeake	36.690945	-76.188493	PFO	Depressional	RPWWN	0.235	10,215.211	Open	44
VEPCO-W-7	Chesapeake	36.692168	-76.187925	PFO	Depressional	RPWWN	0.083	3,636.167	Open	44
SMR-W-025	This feature is not included in the current submittal. Please refer to the SMR Site Delineation package for information regarding this feature.									1
JD_W_015	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									1

Notes:

1. In decimal degrees. Coordinates show wetland test pit locations.
2. E2EM= Estuarine Emergent
   PEM = Palustrine Emergent
   PFO = Palustrine Forested
   PSS = Palustrine Scrub Shrub
3. HGM = Hydrogeomorphic
4. RPWWD = Wetlands directly abutting Relatively Permanent Waters (RPWs) that flow directly or indirectly into Traditional Navigable Waterways (TNWs)
   RPWWN = Wetlands adjacent but not directly abutting RPWs that flow directly or indirectly into TNWs
   NRPWW = Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   TNWW = Wetlands adjacent to TNWs
   Isolate = Isolated (interstate or intrastate) waters, including isolated wetlands
5. Size of wetlands with open boundaries may be larger than shown in this table. Wetland size shown is area of the wetland delineated and illustrated on the Delineation Mapbook.

Table 3: Streams Identified in the Project Area

Stream Reach ID	NHD Stream Name[2]	County	Latitude[3]	Longitude[3]	Flow Regime	Water Type[4]	Cowardin Class[5]	Flow Direction	Size (Acres)	Size (square feet)	Ordinary High Water Mark Width (feet)	Mapbook Page #
Bedford-R3-21	UNT Pocaty River	Chesapeake	36/694054	-76.170858	Perennial	RPW	R3	Southeast	0.011	498.477	No Data	39,40
Bedford-RPW-9	UNT Pocaty River	Chesapeake	36.703009	-76.169527	Perennial	RPW	R2	Southwest	0.041	1,775.369	3.00	37,38
ED_S_01	UNT Pocaty River	Chesapeake	36.688318	-76.185698	Intermittent	RPW	R4	South	0.025	1,074.002	3.00	43
ED_S_02	UNT Pocaty River	Chesapeake	36.686502	-76.173409	Perennial	RPW	R2	Southwest	0.627	27,310.021	13.00	41
ED_S_03	UNT Pocaty River	Chesapeake	36.688785	-76.171976	Intermittent	RPW	R4	East	0.073	3,158.526	6.00	41
EF_S_1001	UNT North Landing River	Virginia Beach	36.75286	-76.119052	Perennial	RPW	R2	southwest	0.078	3,386.250	10.00	22,23
EF_S_2002	UNT West Neck Creek	Virginia Beach	36.769564	-76.070997	Intermittent	RPW	R4	south	0.050	2,189.736	6.00	15
JA_S_001	UNT Intracoastal Waterway	Chesapeake	36.724271	-76.185828	Perennial	RPW	R2	South	0.057	2,475.543	30.00	33,34
JA_S_003	UNT North Landing River	Chesapeake	36.754614	-76.115132	Intermittent	RPW	R4	West	0.017	727.232	4.00	5
JA_S_003B	UNT North Landing River	Chesapeake	36.754614	-76.115132	Intermittent	RPW	R4	Southwest	0.006	263.677	3.00	22
JA_S_004	UNT North Landing River	Chesapeake	36.756307	-76.111946	Perennial	RPW	R4	Northeast	0.182	7,942.702	30.00	22
JA_S_005	UNT Intracoastal Waterway	Chesapeake	36.715525	-76.167685	Ephemeral	NRPW	R6	North	0.002	74.206	2.00	35,36
JA_S_006	UNT West Neck Creek	Virginia Beach	36.790789	-76.020988	Intermittent	RPW	R4	Southwest	0.196	8,524.354	10.00	5,6
JA_S_007	UNT North Landing River	Virginia Beach	36.751414	-76.121843	Ephemeral	NRPW	R6	Northeast	0.263	1,144.714	2.50	23
JA_S_008	UNT North Landing River	Virginia Beach	36.751632	-76.121328	Ephemeral	NRPW	R6	Northeast	0.001	58.114	2.00	23
JC_S_001	UNT Lake Rudee	Virginia Beach	36.818225	-75.987355	Perennial	TNW	R1	Northeast	0.015	641.025	4.00	1

Table 3: Streams Identified in the Project Area

Stream Reach ID	NHD Stream Name[2]	County	Latitude[3]	Longitude[3]	Flow Regime	Water Type[4]	Cowardin Class[5]	Flow Direction	Size (Acres)	Size (square feet)	Ordinary High Water Mark Width (feet)	Mapbook Page #
JC_S_003	Intracoastal Waterway	Chesapeake	36.723573	-76.164077	Perennial	TNW	R1	N/A[6]	1.638	71,343.835	70.00	31
JC_S_009	North Landing River	Virginia Beach	36.752433	-76.120056	Perennial	RPW	R2	Southeast	0.167	7,289.790	21.00	23
JCros_S_001	UNT West Neck Creek	Virginia Beach	36.770331	-76.043736	Perennial	RPW	R2	South	0.010	438.609	4.00	11
JD_S_002	UNT North Landing River	Virginia Beach	36.768273	-76.084147	Ephemeral	NRPW	R6	South	0.020	876.901	0.50	17
JD_S_005	UNT North Landing River	Virginia Beach	36.759497	-76.099451	Perennial	RPW	R2	West	0.359	15,650.929	10.00	20,21
JD_S_009	UNT North Landing River	Chesapeake	36.770464	-76.045993	Intermittent	RPW	R4	South	0.008	346.542	3.00	11
RD_S_001	UNT West Neck Creek	Virginia Beach	36.771812	-76.035652	Intermittent	RPW	R4	South	0.020	852.527	0.50	9
RD_S_001_EXT	UNT West Neck Creek	Virginia Beach	36.771823	-76.035853	Intermittent	RPW	R4	South	0.032	1,397.109	0.50	9
RD_S_002	UNT West Neck Creek	Virginia Beach	36.770368	-76.042025	Ephemeral	NRPW	R6	Northeast	0.019	816.139	10.00	10
RD_S_003	UNT West Neck Creek	Virginia Beach	36.770291	-76.040534	Ephemeral	NRPW	R6	Northwest	0.007	292.650	4.00	10
RD_S_004	UNT West Neck Creek	Virginia Beach	36.770497	-76.043066	Perennial	RPW	R2	Northwest	0.190	8,281.912	8.00	10,11
RD_S_005	UNT West Neck Creek	Virginia Beach	36.770350	-76.063370	Perennial	RPW	R6	Southeast	0.028	1,225.350	4.00	14
RD_S_006	UNT West Neck Creek	Virginia Beach	36.770108	-76.063184	Ephemeral	NRPW	R6	Northeast	0.005	226.888	3.00	14
RD_S_007	UNT West Neck Creek	Virginia Beach	36.770073	-76.062926	Ephemeral	NRPW	R6	North	0.008	328.045	3.00	14
RD_S_008	UNT West Neck Creek	Virginia Beach	36.770496	-76.048759	Perennial	RPW	R2	South	0.136	5,934.621	19.00	11
RD_S_009	West Neck Creek	Virginia Beach	36.770176	-76.055751	Perennial	RPW	R2	Southeast	0.757	32,980.901	20.00	12
TC_S_001	UNT North Landing River	Virginia Beach	36.758096	-76.107801	Intermittent	RPW	R4	South	0.054	2,363.878	8.00	21

Table 3: Streams Identified in the Project Area

Stream Reach ID	NHD Stream Name[2]	County	Latitude[3]	Longitude[3]	Flow Regime	Water Type[4]	Cowardin Class[5]	Flow Direction	Size (Acres)	Size (square feet)	Ordinary High Water Mark Width (feet)	Mapbook Page #
TC_S_01	UNT West Neck Creek	Virginia Beach	36.768996	-76.074178	Intermittent	RPW	R4	Northeast	0.044	1,919.846	5.00	15
JC_S_001	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.											1

Notes:

1. Streams with braided channels, streams that have different flow regimes (e.g., ephemeral and intermittent) within the surveyed reach, and NHD named streams with different field stream reach identification names are counted as single streams
2. From USGS NHD (2019). For identified streams without an NHD name, the identified stream was given the name, "Unnamed Tributary (UNT)", of the first named receiving waterbody.
3. In decimal degrees
4. RPW = Relatively Permanent Waters
   NRPW = Non-Relatively Permanent Waters
   TNW = Traditional Navigable Waters
5. From Cowardin et al. 1979;
   R1-Riverine, Tidal.
   R2-Riverine, Perennial
   R3-Riverine, Upper Perennial
   R4-Riverine, Intermittent
   R6-Riverine, Ephemeral
6. The intracoastal waterway is wind-tide driven system and drains into the Southern Branch Elizabeth River at its western extent, and to the North Landing River at its eastern extent.

Table 4. Ditches Identified within the Project area

Ditch ID	County	Latitude[1]	Longitude[1]	Flow Regime	Water Type[2]	Cowardin Class[3]	Flow Direction	Size (acres)	Size (square feet)	Mapbook Page #
ED_D_004	Chesapeake	36.691909	-76.171121	Ephemeral	NRPW	R6	SE	0.0385	1,677.2025	40
ED_D_1001	Chesapeake	36.691398	-76.185805	Ephemeral	NRPW	R6	SE	0.0221	963.0963	44
EF_D_001	Chesapeake	36.717404	-76.167090	Ephemeral	NRPW	R6	W	0.0174	756.0293	35
EF_D_002	Chesapeake	36.713136	-76.168220	Intermittent	RPW	R4	SE	0.0394	1,718.1294	36
EF_D_003	Chesapeake	36.716350	-76.167368	Ephemeral	NRPW	R6	E	0.0084	365.8689	35
EF_D_004	Chesapeake	36.691956	-76.17127	Intermittent	RPW	R4	N	0.0353	1,353.9037	36
EF_D_005	Chesapeake	36.713553	-76.1683479	Ephemeral	NRPW	R6	SE	0.0203	885.5392	36
EF_D_006	Chesapeake	36.688671	-76.185947	Ephemeral	NRPW	R6	SE	0.0478	2,083.1196	43
EF_D_007	Chesapeake	36.688647	-76.187821	Ephemeral	NRPW	R6	NE	0.0096	419.0139	43
EF_D_010	Chesapeake	36.699146	-76.169888	Ephemeral	NRPW	R6	SE	0.0174	756.0656	39
EF_D_011	Chesapeake	36.700165	-76.170037	Ephemeral	NRPW	R6	NE	0.0117	509.8509	38
EF_D_012	Chesapeake	36.699958	-76.169736	Ephemeral	NRPW	R6	NE	0.0152	662.1724	38,39
EF_D_013	Chesapeake	36.700938	-76.169842	Intermittent	RPW	R4	NW	0.0656	2,857.4903	38
EF_D_014	Chesapeake	36.701354	-76.169647	Ephemeral	NRPW	R6	N	0.0145	630.3517	38
EF_D_015	Chesapeake	36.701892	-76.170069	Ephemeral	NRPW	R6	NE	0.0269	1,173.5635	38
EF_D_034	Virginia Beach	36.737154	-76.084472	Ephemeral	NRPW	R6	S	0.0185	803.7752	36,37
EF_D_061	Virginia Beach	36.770686	-76.066940	Ephemeral	NRPW	R6	NE	0.0147	641.1346	14
EF_D_062	Virginia Beach	36.770674	-76.066531	Ephemeral	NRPW	R6	NE	0.0148	645.5128	14
EF_D_063	Virginia Beach	36.770671	-76.066066	Ephemeral	NRPW	R6	NE	0.0392	1,705.8035	14
EF_D_064	Virginia Beach	36.770356	-76.065869	Ephemeral	NRPW	R6	NE	0.0357	1,556.0537	14
EF_D_065	Virginia Beach	36.770025	-76.065298	Ephemeral	NRPW	R6	NE	0.0344	1,498.0224	14
EF_D_2001	Virginia Beach	36.692134	-76.171303	Intermittent	RPW	R4	No Apparent flow direction	0.0394	1,714.4677	40
EF_D_2002	Chesapeake	36.692926	-76.170902	Ephemeral	NRPW	R6	S	0.0366	1,596.4514	40

Table 4. Ditches Identified within the Project area

Ditch ID	County	Latitude[1]	Longitude[1]	Flow Regime	Water Type[2]	Cowardin Class[3]	Flow Direction	Size (acres)	Size (square feet)	Mapbook Page #
EF_D_2003	Chesapeake	36.693124	-76.171366	Ephemeral	NRPW	R6	S	0.0467	2,034.8665	40
EF_D_2005	Virginia Beach	36.768943	-76.074310	Ephemeral	NRPW	R6	SE	0.0094	408.4981	15
JA_D_001	Virginia Beach	36.787471	-76.021665	Ephemeral	NRPW	R6	SW	0.0528	2,300.8358	5,6
JA_D_001B	Virginia Beach	36.793357	-76.019887	Ephemeral	NRPW	R6	SE	0.0124	541.9213	4
JA_D_003	Virginia Beach	36.786034	-76.022039	Ephemeral	NRPW	R6	SW	0.0174	757.5559	6
JA_D_004	Virginia Beach	36.795007	-76.022089	Ephemeral	NRPW	R6	S	0.0131	569.6315	3
JA_D_005	Virginia Beach	36.784952	-76.023530	Ephemeral	NRPW	R6	SE	0.0078	340.0488	6,7
JA_D_006	Virginia Beach	36.784907	-76.024479	Ephemeral	NRPW	R6	SE	0.0340	1,481.0361	6,7
JA_D_007	Virginia Beach	36.783884	-76.024101	Ephemeral	NRPW	R6	SE	0.0027	118.8174	6,7
JA_D_008	Virginia Beach	36.783481	-76.024590	Ephemeral	NRPW	R6	SE	0.0078	338.7020	7
JA_D_009	Virginia Beach	36.782922	-76.024861	Ephemeral	NRPW	R6	SE	0.0102	443.8481	7
JA_D_010	Virginia Beach	36.782377	-76.025157	Ephemeral	NRPW	R6	SE	0.0102	444.3447	7
JA_D_011	Virginia Beach	36.781869	-76.025503	Ephemeral	NRPW	R6	SE	0.0112	486.4625	7,8
JA_D_012	Virginia Beach	36.781466	-76.025990	Ephemeral	NRPW	R6	SE	0.0090	393.4293	8
JA_D_013	Virginia Beach	36.780924	-76.026296	Ephemeral	NRPW	R6	SE	0.0063	275.5714	8
JA_D_014	Virginia Beach	36.780566	-76.026779	Ephemeral	NRPW	R6	SE	0.0387	1,686.9851	8
JA_D_015	Virginia Beach	36.780174	-76.027171	Ephemeral	NRPW	R6	SE	0.0064	280.4471	8
JA_D_016	Virginia Beach	36.779714	-76.027562	Ephemeral	NRPW	R6	SE	0.0065	281.2968	8
JA_D_017	Virginia Beach	36.779310	-76.028021	Ephemeral	NRPW	R6	SE	0.0097	420.4233	8
JA_D_018	Virginia Beach	36.778951	-76.028567	Ephemeral	NRPW	R6	SE	0.0060	259.7270	8
JA_D_019	Virginia Beach	36.778474	-76.028904	Ephemeral	NRPW	R6	SE	0.0129	562.1080	8
JA_D_020	Virginia Beach	36.787834	-76.021657	Ephemeral	NRPW	R6	E	0.0190	851.2000	5
JA_D_4	Virginia Beach	36.795007	-76.022089	Ephemeral	NRPW	R6	W	0.0116	504.8528	35
JC_D_301	Virginia Beach	36.756842	-76.110767	Ephemeral	NRPW	R6	SE	0.0115	500.6899	21
Jcros_D_006	Virginia Beach	36.792571	-76.019127	Ephemeral	NRPW	R6	S	0.0885	3,855.9385	4,5
Jcros_D_007	Virginia Beach	36.792751	-76.018488	Ephemeral	NRPW	R6	S	0.0742	3,232.2763	4,5
Jcros_D_008	Virginia Beach	36.792739	-76.017797	Ephemeral	NRPW	R6	S	0.0721	3,141.7859	4,5
Jcros_D_009	Virginia Beach	36.792025	-76.017145	Ephemeral	NRPW	R6	S	0.0538	2342.6110	4,5

Table 4. Ditches Identified within the Project area

Ditch ID	County	Latitude[1]	Longitude[1]	Flow Regime	Water Type[2]	Cowardin Class[3]	Flow Direction	Size (acres)	Size (square feet)	Mapbook Page #
Jcros_D_010	Virginia Beach	36.792142	-76.016548	Ephemeral	NRPW	R6	S	0.0284	1,237.7642	4,5
Jcros_D_011	Virginia Beach	36.791504	-76.018004	Ephemeral	NRPW	R6	W	0.0500	2,180.1537	5
JD_D_001	Chesapeake	36.688985	-76.186967	Ephemeral	NRPW	R6	SW	0.0091	398.0210	43,44
JD_D_013	Virginia Beach	36.767442	-76.082171	Ephemeral	NRPW	R6	E	0.0000	0.0261	17
JD_D_014	Virginia Beach	36.766675	-76.082816	Ephemeral	NRPW	R6	E	0.0397	1,728.5891	17
JD_D_016	Virginia Beach	36.765056	-76.085348	Ephemeral	NRPW	R6	E	0.0210	916.1147	18
JD_D_017	Virginia Beach	36.764286	-76.086467	Ephemeral	NRPW	R6	E	0.0212	923.3041	18
JD_D_018	Virginia Beach	36.763822	-76.087297	Ephemeral	NRPW	R6	SW	0.0034	148.8029	18,19
JD_D_019	Virginia Beach	36.762774	-76.088512	Ephemeral	NRPW	R6	E	0.0230	1,002.7468	19
JD_D_020	Virginia Beach	36.761615	-76.090416	Ephemeral	NRPW	R6	E	0.0515	2,245.2216	19
JD_D_053	Virginia Beach	36.760757	-76.093312	Ephemeral	NRPW	R6	E	0.0428	1,862.2277	15,17
JD_D_054	Virginia Beach	36.76077	-76.094217	Ephemeral	NRPW	R6	S	0.0192	837.7993	19
JD_D_055	Virginia Beach	36.760691	-76.095179	Ephemeral	NRPW	R6	S	0.0413	1,800.8828	19
JD_D_056	Virginia Beach	36.760520	-76.096203	Ephemeral	NRPW	R6	S	0.0413	1,799.1273	19,20
JD_D_057	Virginia Beach	36.760484	-76.097261	Ephemeral	NRPW	R6	S	0.0414	1,803.1998	20
JD_D_058	Virginia Beach	36.760309	-76.098286	Ephemeral	NRPW	R6	SW	0.0524	2,281.4573	20
JD_D_059	Virginia Beach	36.774616	-76.033707	Ephemeral	NRPW	R6	E	0.0225	982.1735	9
JD_D_060	Virginia Beach	36.775102	-76.033348	Ephemeral	NRPW	R6	E	0.0105	457.6125	9
JD_D_061	Virginia Beach	36.775272	-76.032587	Ephemeral	NRPW	R6	E	0.0097	423.0343	9
JD_D_062	Virginia Beach	36.775636	-76.032092	Ephemeral	NRPW	R6	E	0.0097	423.2493	9
JD_D_063	Virginia Beach	36.776239	-76.031881	Ephemeral	NRPW	R6	E	0.0104	452.9728	9
JD_D_064	Virginia Beach	36.776383	-76.030951	Ephemeral	NRPW	R6	E	0.0098	425.8879	8,9
JD_D_065	Virginia Beach	36.777150	-76.030707	Ephemeral	NRPW	R6	E	0.0065	282.5588	8
JD_D_066	Virginia Beach	36.777605	-76.030156	Ephemeral	NRPW	R6	E	0.0064	279.8559	8
JD_D_067	Virginia Beach	36.778014	-76.0295809	Ephemeral	NRPW	R6	E	0.0064	280.0854	8
JD_D_083	Virginia Beach	36.770471	-76.044058	Ephemeral	NRPW	R6	S	0.0107	463.9481	11
JD_D_086	Virginia Beach	36.760759	-76.09331	Ephemeral	NRPW	R6	S	0.0096	419.7696	19

Table 4. Ditches Identified within the Project area

Ditch ID	County	Latitude[1]	Longitude[1]	Flow Regime	Water Type[2]	Cowardin Class[3]	Flow Direction	Size (acres)	Size (square feet)	Mapbook Page #
KH_D_002	Chesapeake	36.702774	-76.169666	Intermittent	RPW	R6	SW	0.0338	1,470.6200	38
KH_D_006	Chesapeake	36.704013	-76.169811	Ephemeral	NRPW	R6	NE	0.0191	832.5764	38
KH_D_007	Chesapeake	36.704443	-76.169798	Ephemeral	NRPW	R6	NE	0.0114	498.0371	38
KH_D_008	Chesapeake	36.704872	-76.169781	Ephemeral	NRPW	R6	NE	0.0158	689.4392	37,38
KH_D_009	Chesapeake	36.705326	-76.169697	Ephemeral	NRPW	R6	NE	0.0099	429.8559	37
KH_D_011	Chesapeake	36.705687	-76.170202	Ephemeral	NRPW	R6	NE	0.0260	1,130.9910	37
KH_D_012	Chesapeake	36.709410	-76.169087	Ephemeral	NRPW	R6	NE	0.0079	345.5478	37
KH_D_013	Chesapeake	36.708957	-76.169150	Ephemeral	NRPW	R6	NE	0.0079	345.9451	37
KH_D_014	Chesapeake	36.708439	-76.169247	Ephemeral	NRPW	R6	NE	0.0119	517.0228	37
KH_D_015	Chesapeake	36.707996	-76.169303	Ephemeral	NRPW	R6	NE	0.0159	690.4324	37
KH_D_016	Chesapeake	36.707486	-76.169373	Ephemeral	NRPW	R6	NE	0.0159	691.4312	37
KH_D_017	Chesapeake	36.707009	-76.169451	Ephemeral	NRPW	R6	NE	0.0118	516.1334	37
KH_D_018	Chesapeake	36.706517	-76.169515	Ephemeral	NRPW	R6	NE	0.0196	851.8617	37
KH_D_010	Chesapeake	36.705687	-76.170202	Ephemeral	NRPW	R6	NE	0.0292	1,273.6935	37
RD_D_002	Virginia Beach	36.772772	-76.034824	Ephemeral	NRPW	R6	S	0.0167	727.0596	9
RD_D_004	Virginia Beach	36.770371	-76.063305	Ephemeral	NRPW	R6	S	0.0117	509.9510	14
TC_D_005	Virginia Beach	36.760538	-76.101784	Ephemeral	NRPW	R6	WSW	0.0006	26.6015	20
TC_D_002	Virginia Beach	36.769106	-76.073638	Ephemeral	NRPW	R6	NNW	0.0753	3,278.4386	15
TC_D_1001	Virginia Beach	36.774787	-76.032903	Intermittent	RPW	R4	S	0.0809	3,523.8222	9
JD_D_076	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									2
JC_D_108	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									2
JC_D_109	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									2
JC_D_110	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									2
JC_D_111	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									2

Table 4. Ditches Identified within the Project area

Ditch ID	County	Latitude[1]	Longitude[1]	Flow Regime	Water Type[2]	Cowardin Class[3]	Flow Direction	Size (acres)	Size (square feet)	Mapbook Page #
JC_D_103	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									3
JC_D_104	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									3
JC_D_105	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									3
JC_D_106	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									3
JC_D_107	This feature is located on property owned by the Navy and is not included in this submittal. Please refer to the Naval Air Station Oceana Site Delineation package for information regarding this feature.									3

Notes:

1. In decimal degrees
2. RPW = Relatively Permanent Waters
   NRPW = Non-Relatively Permanent Waters
   TNW = Traditional In decimal degrees
3. From Cowardin et al. 1979;
   R1-Riverine, Tidal.
   R2-Riverine, Perennial
   R3 – Riverine, Upper Perennial
   R4-Riverine, Intermittent
   R6-Riverine, Ephemeral

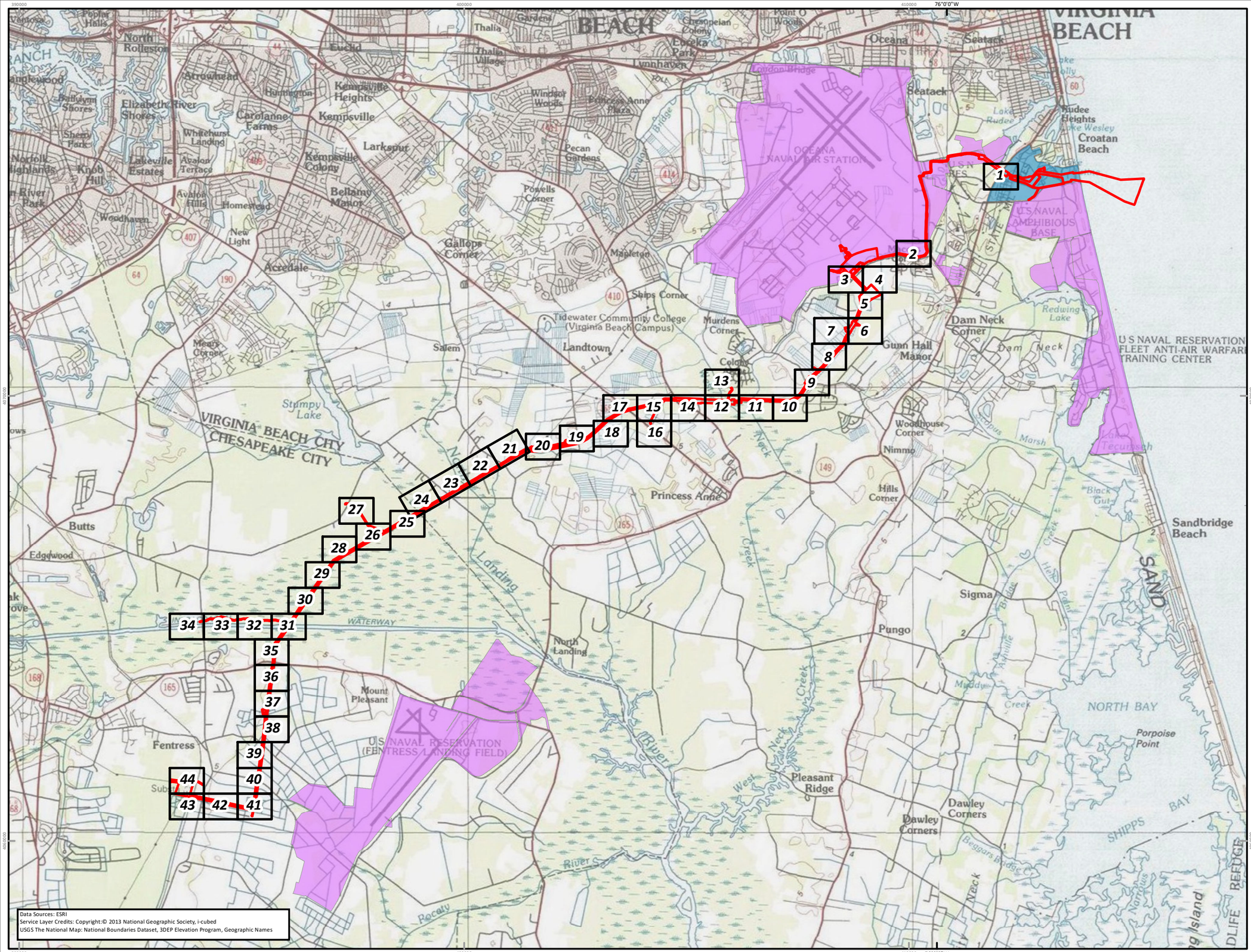
APPENDIX C: FIGURES AND MAPBOOK

Figure 1. Overall Site Map (USGS Topo)

Figure 2. Delineation Mapbook

Figure 3: National Wetlands Inventory Mapbook

FIGURE 1: OVERALL SITE MAP (USGS TOPO)



Data Sources: ESRI
Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: PJD

Dominion Energy®

- Mapbook Page
- Project LOD
- US Navy
- State Military Reservation

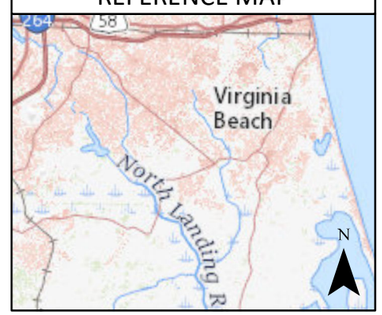
Date	7/1/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 0.5 1 1.5 2 Miles

0 0.5 1 1.5 Nautical Miles

0 1 2 3 Kilometers

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_CoverSheet.mxd

FIGURE 2: DELINEATION MAPBOOK

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody
- Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

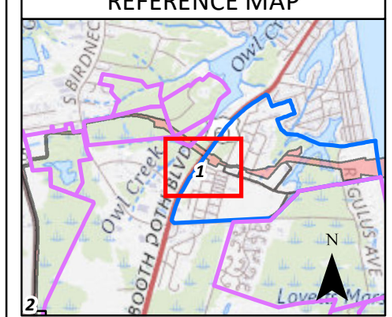
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

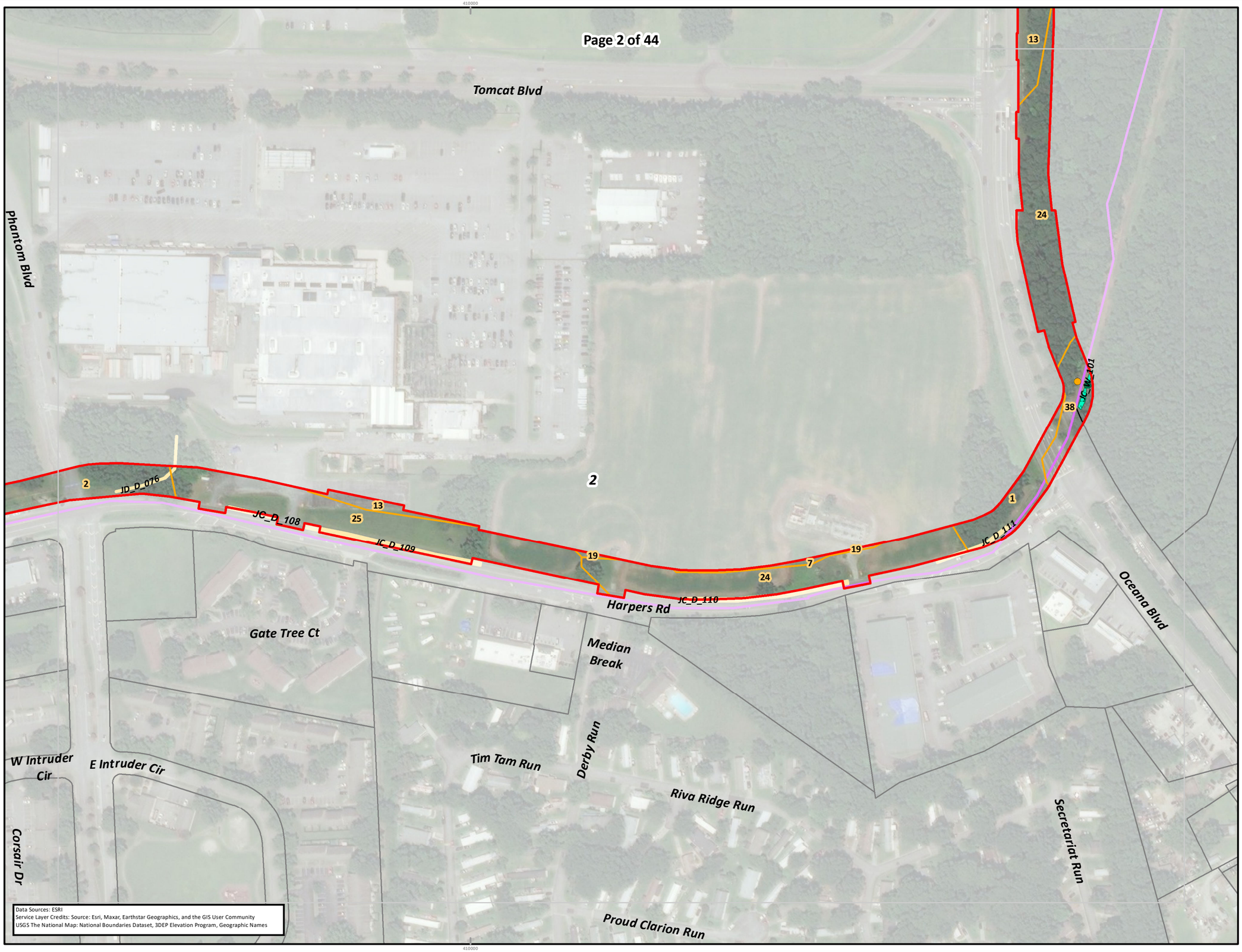
0 25 50 75 100 Meters

REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

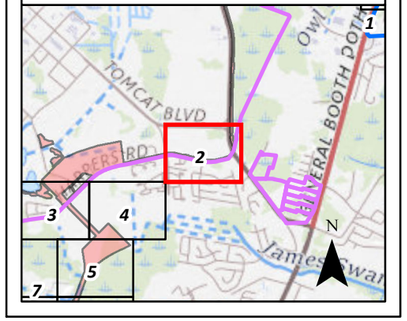
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

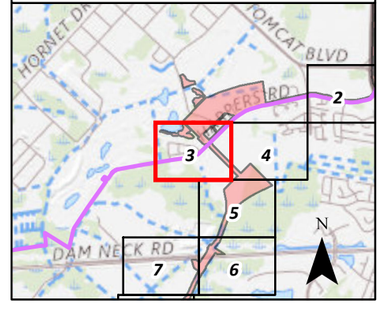
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_M2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

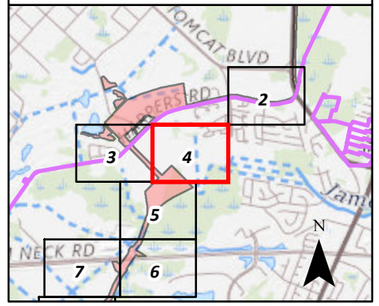
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

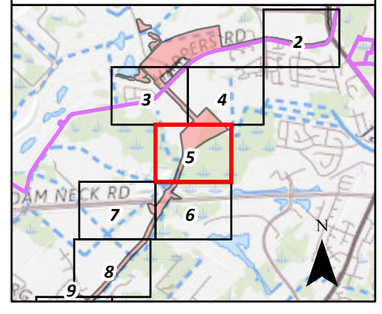
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

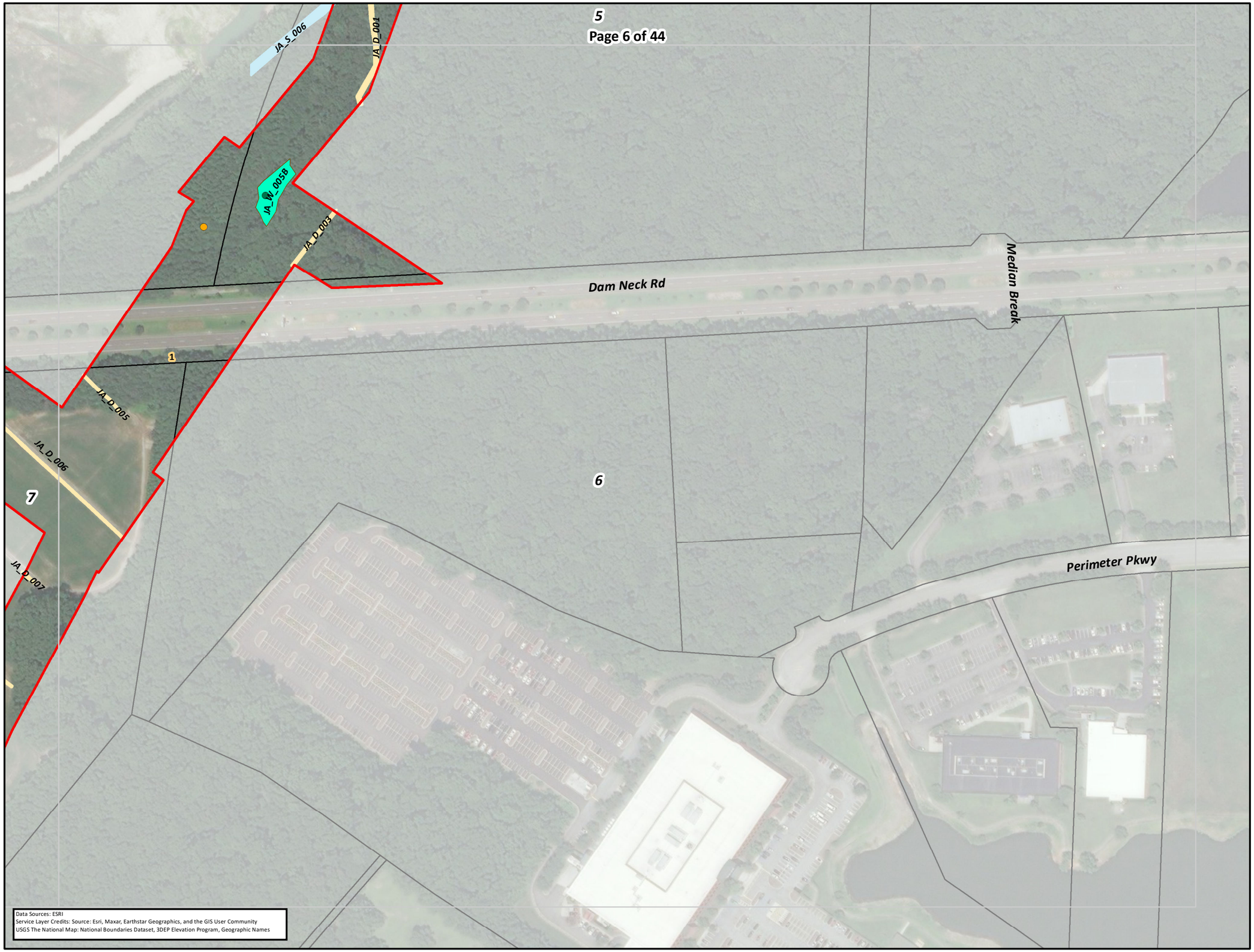
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

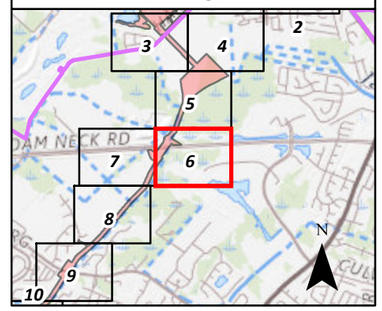
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

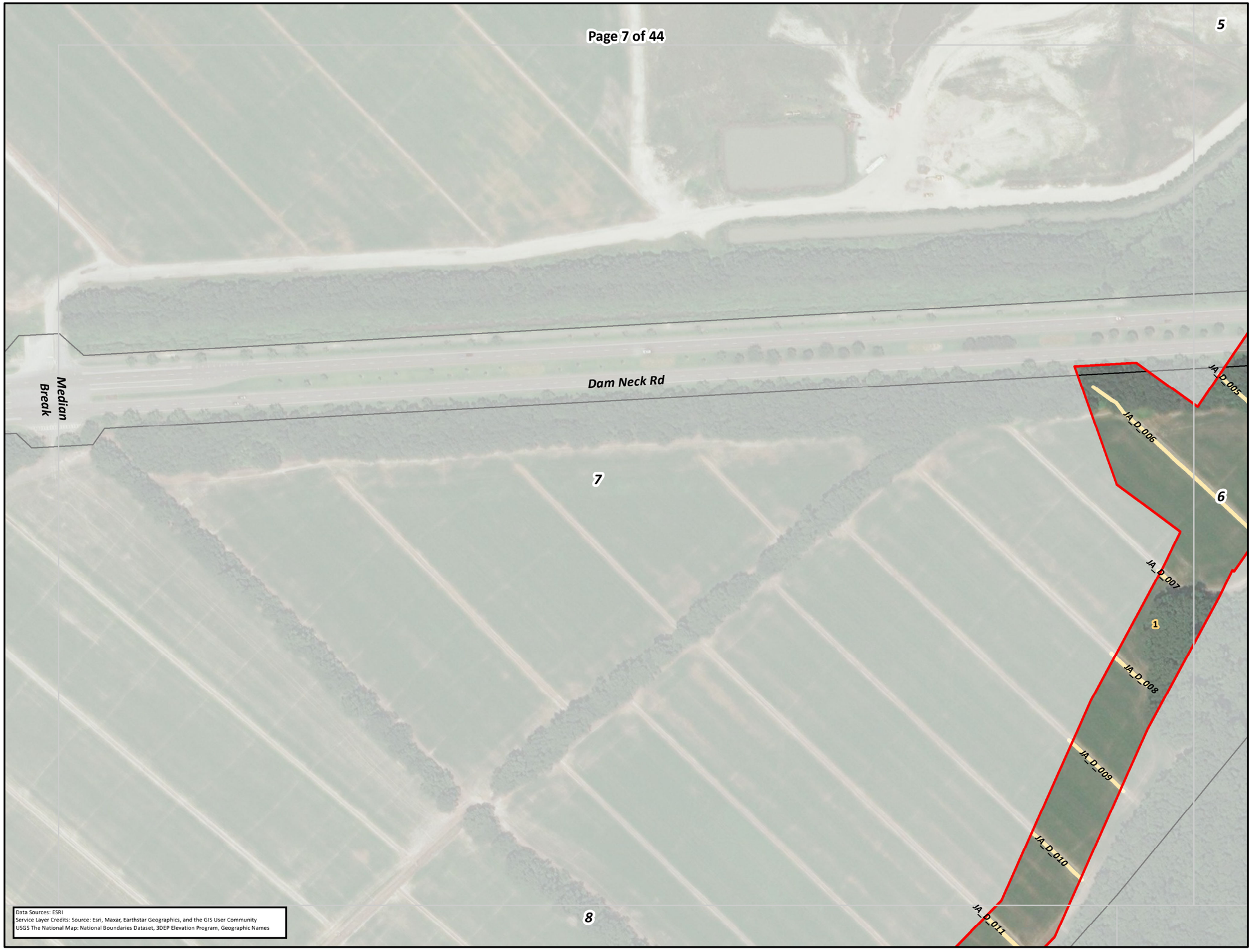
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

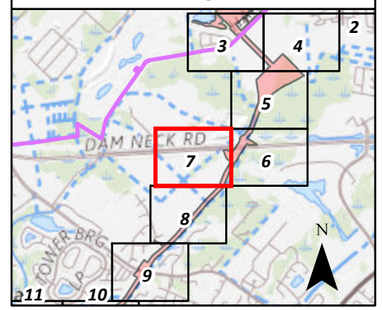
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

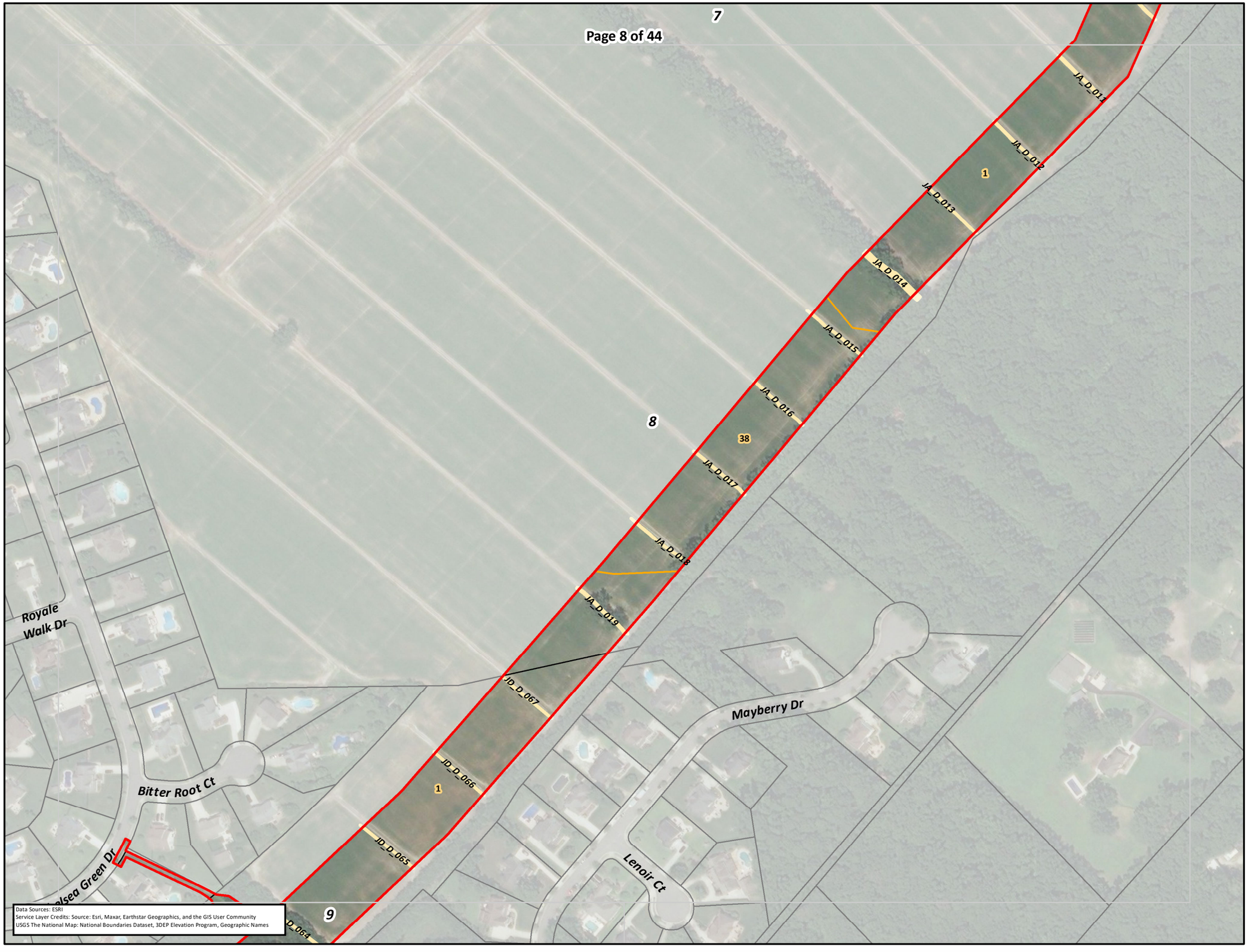
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

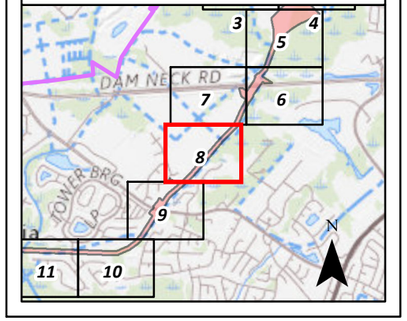
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

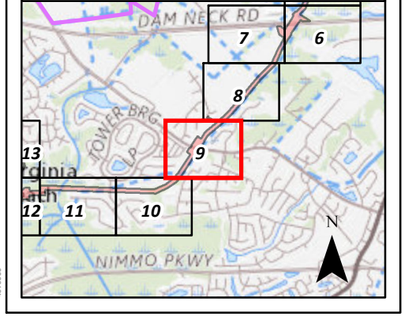
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

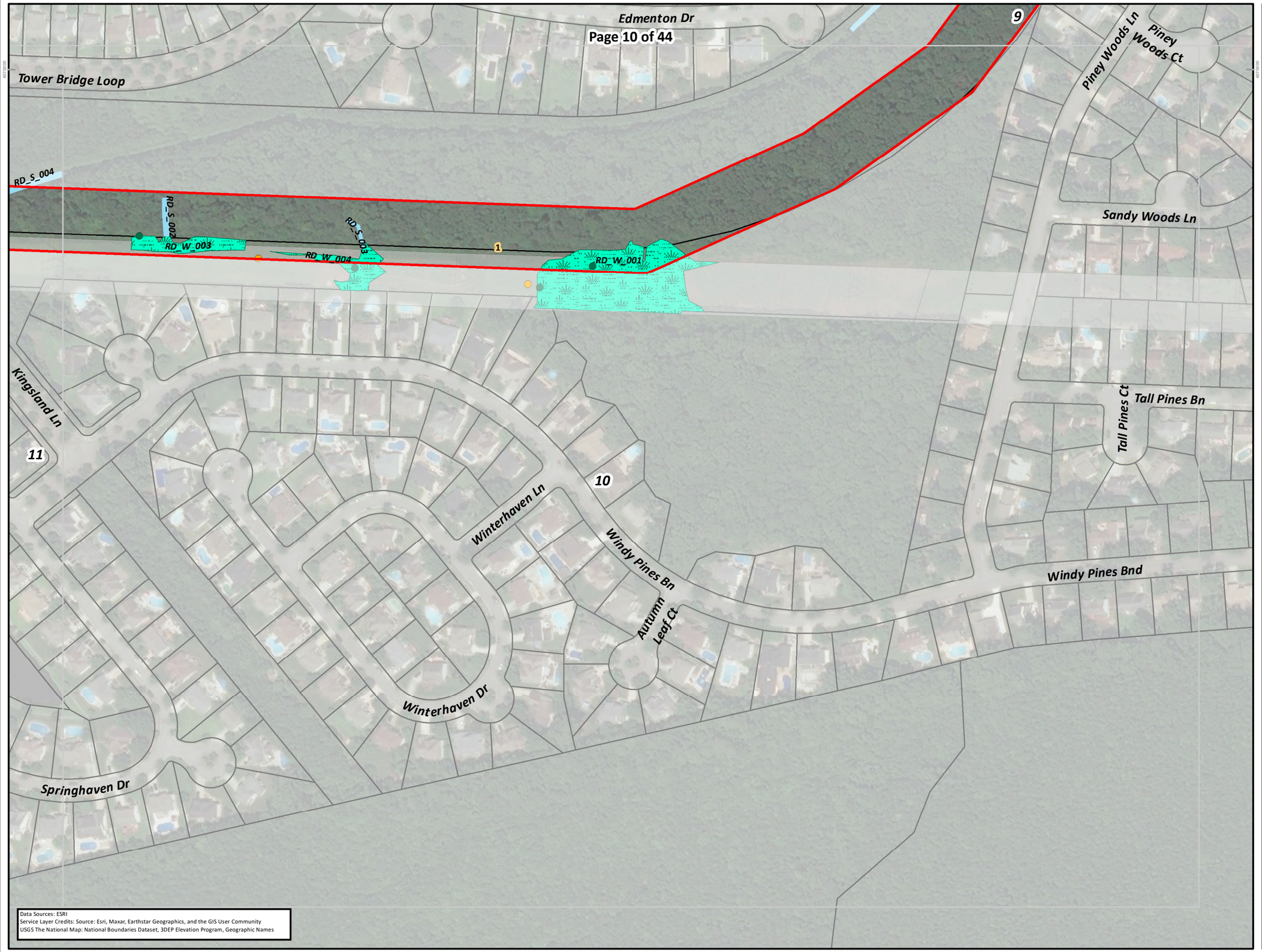
REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line

- Mapbook Page
- Project LOD
- US Navy
- SMR

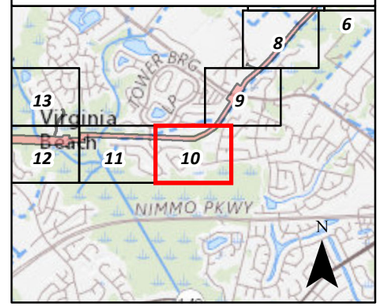
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

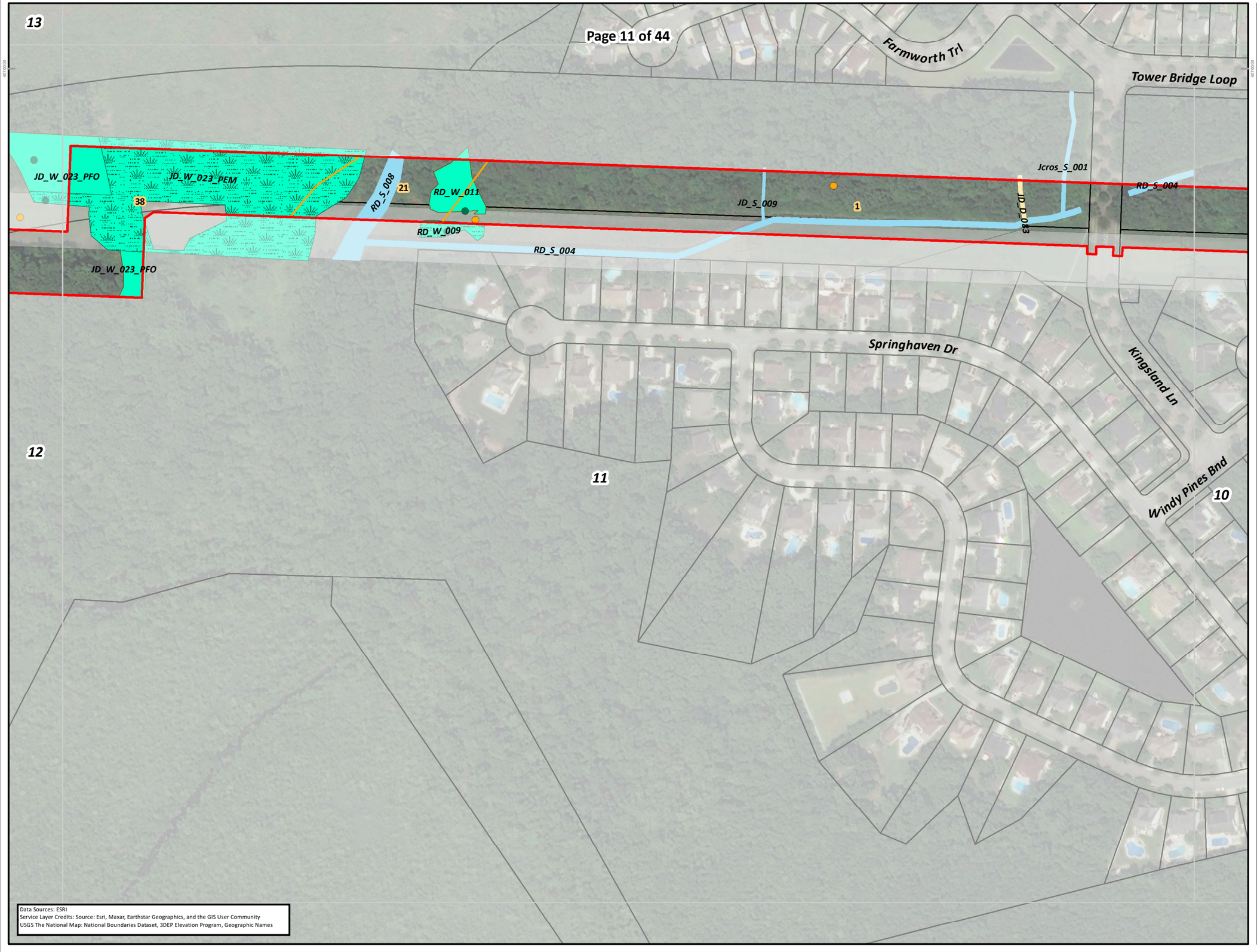
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

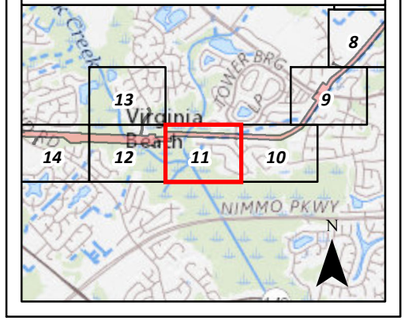
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

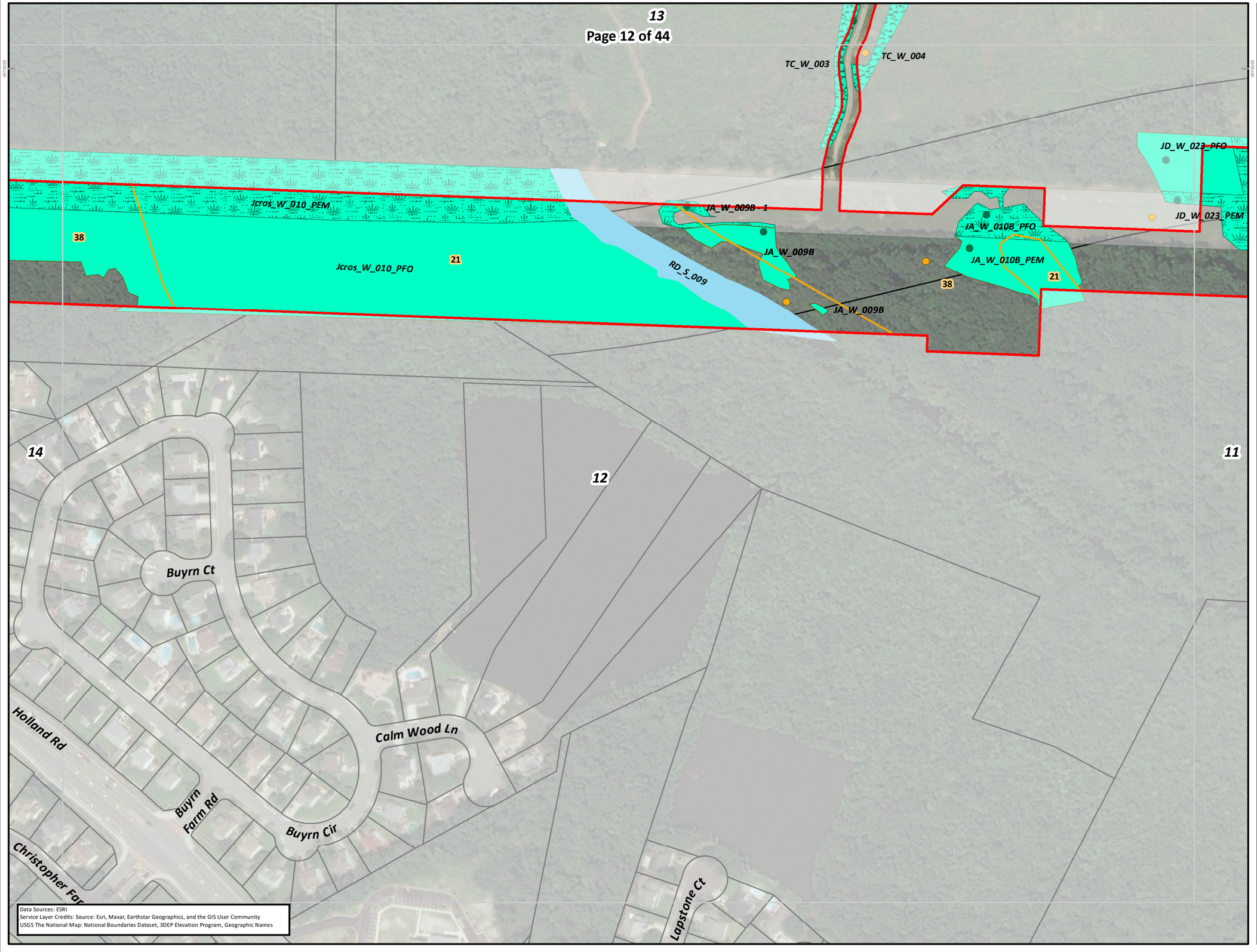
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line

- Mapbook Page
- Project LOD
- US Navy
- SMR

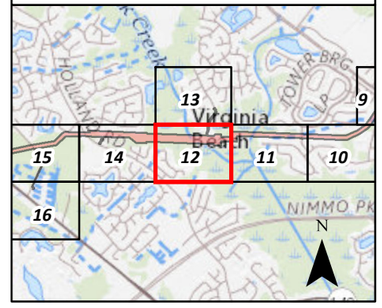
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

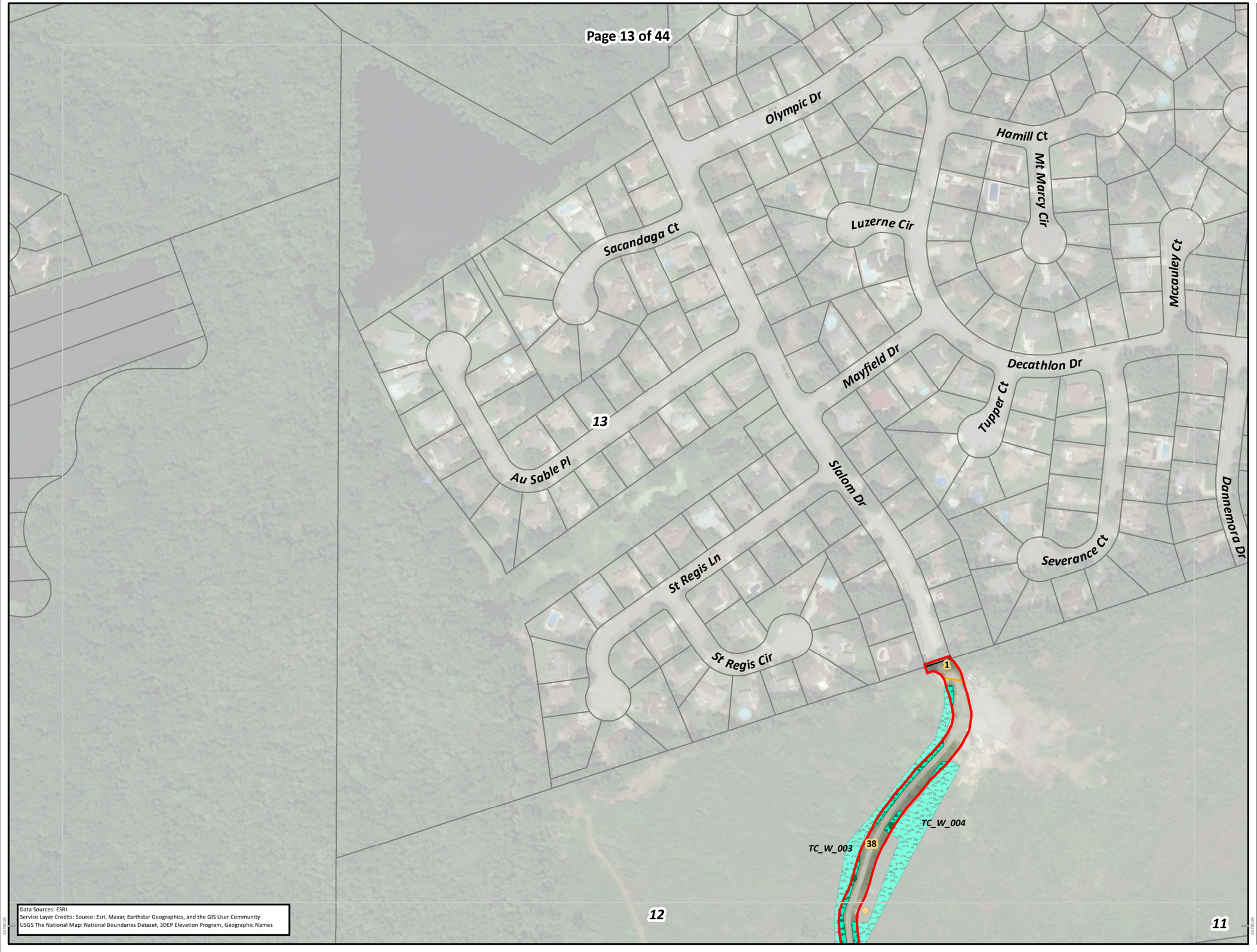
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland
- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line

- Mapbook Page
- Project LOD
- US Navy
- SMR

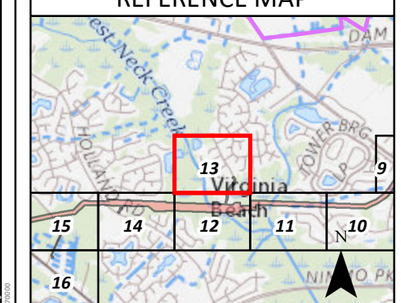
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

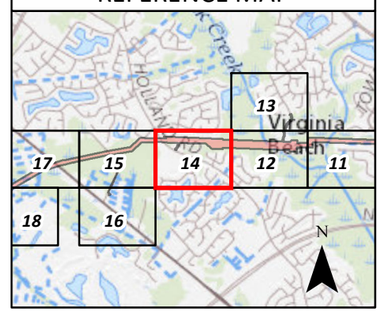
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

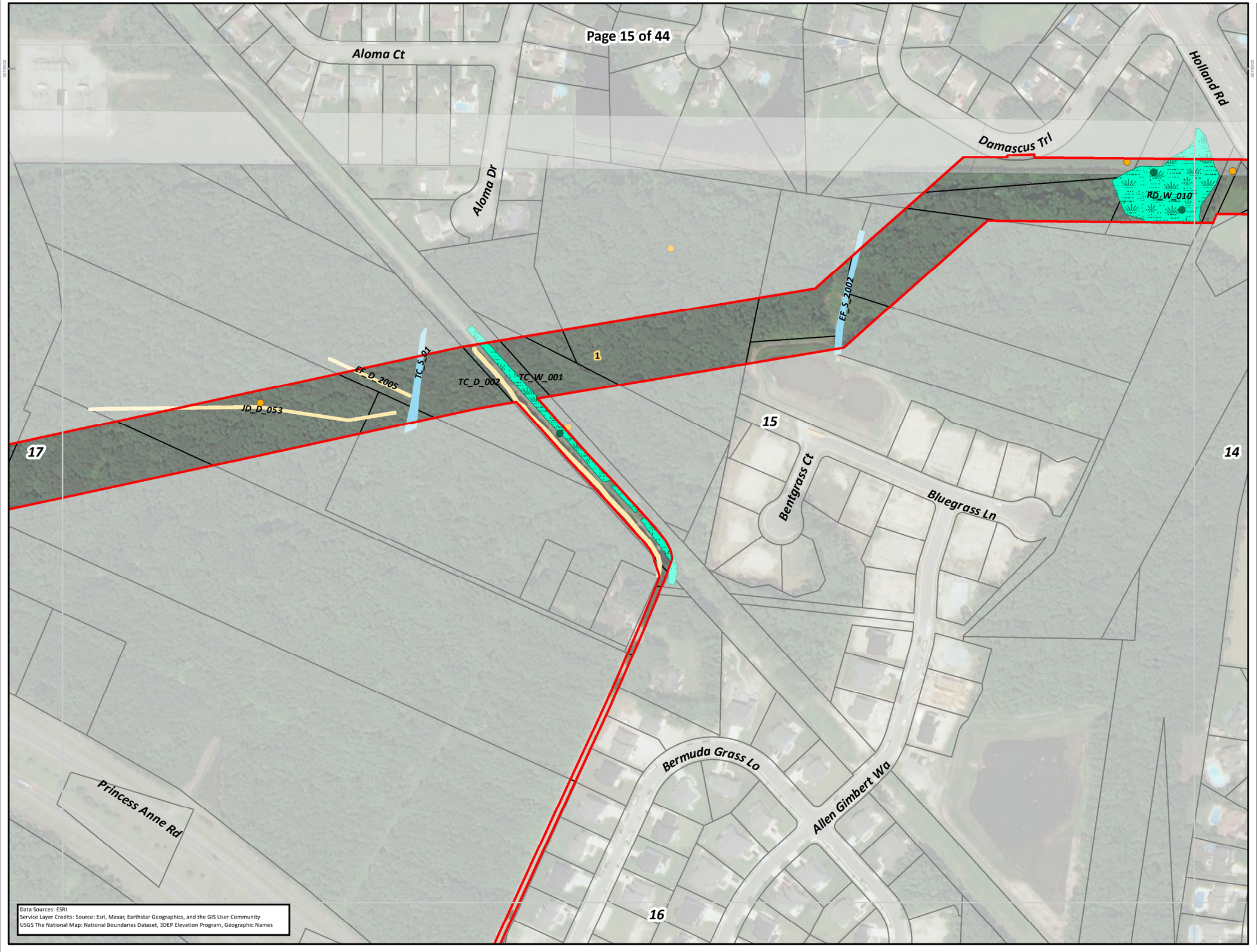
REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_AquaticResources_MZF_MapBook_AerialsMod



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

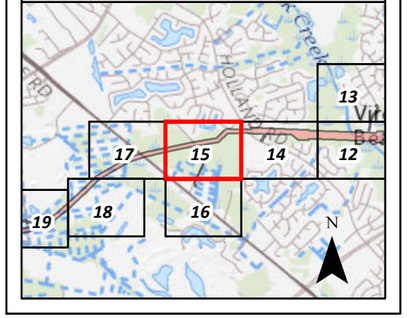
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

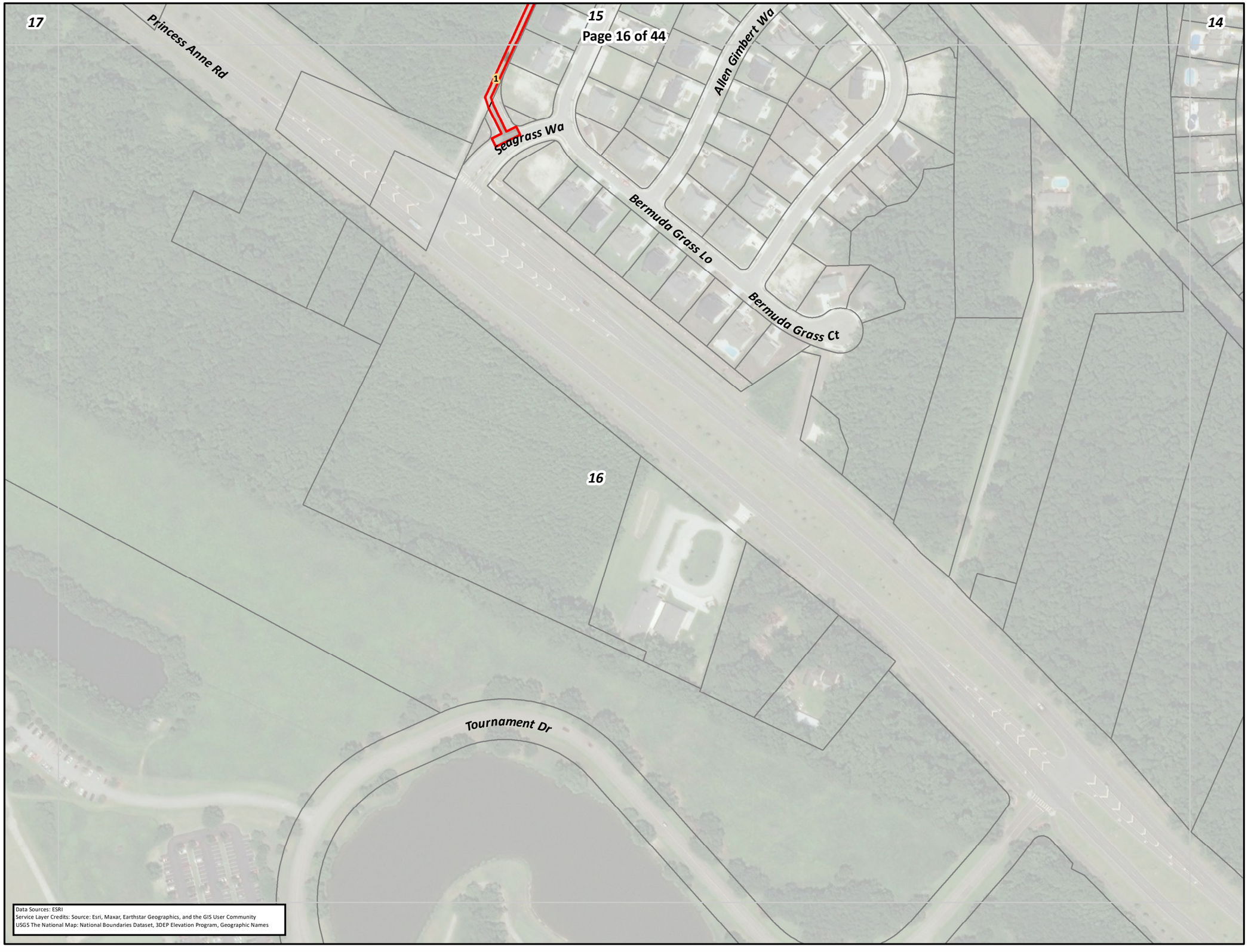
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

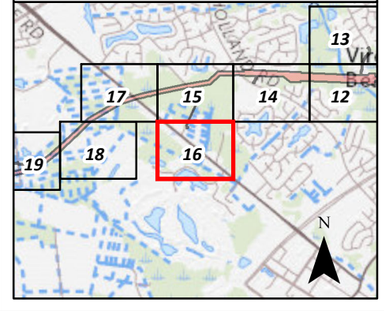
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

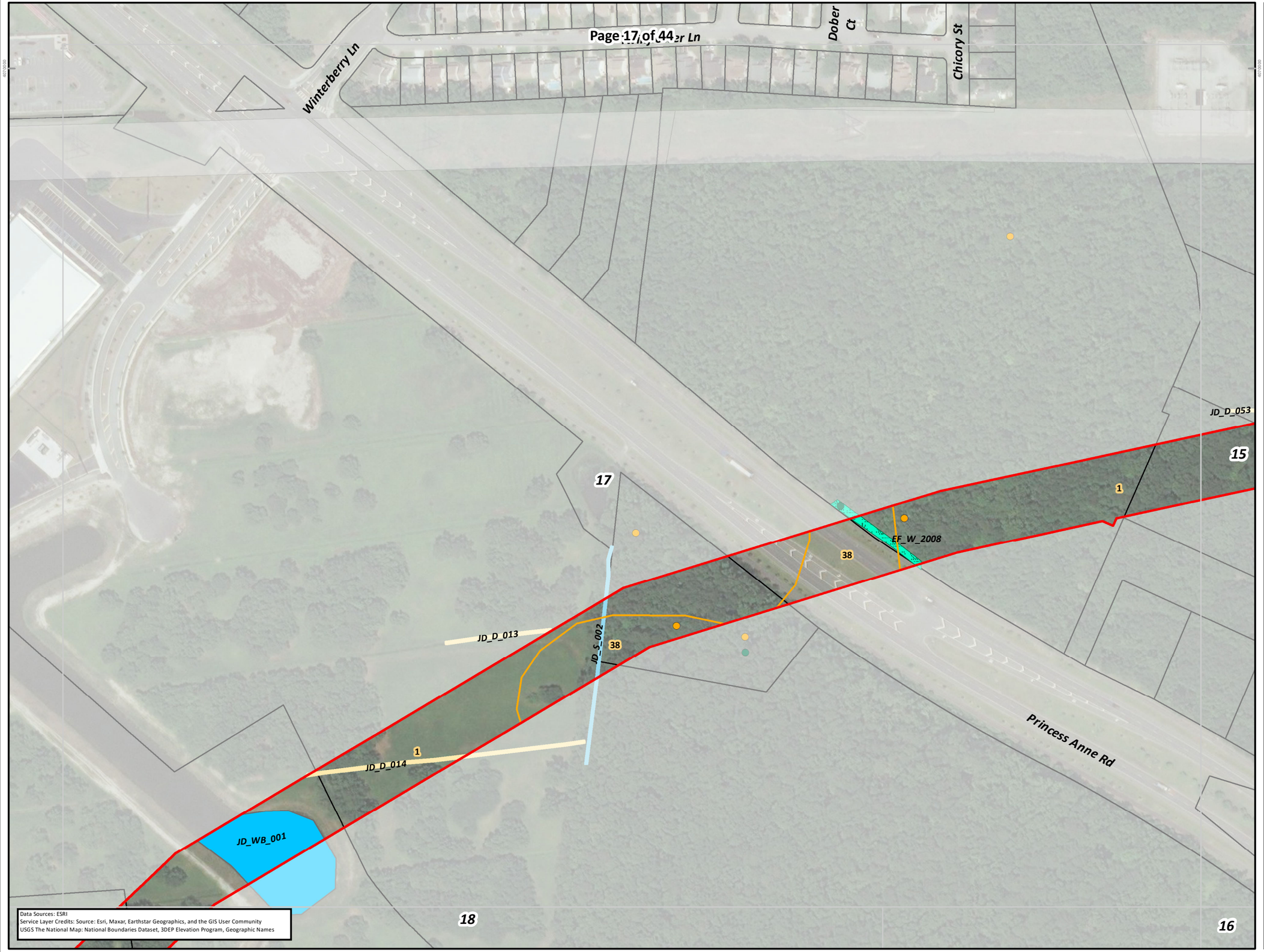
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line

- Mapbook Page
- Project LOD
- US Navy
- SMR

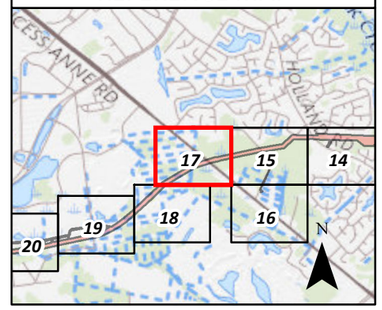
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

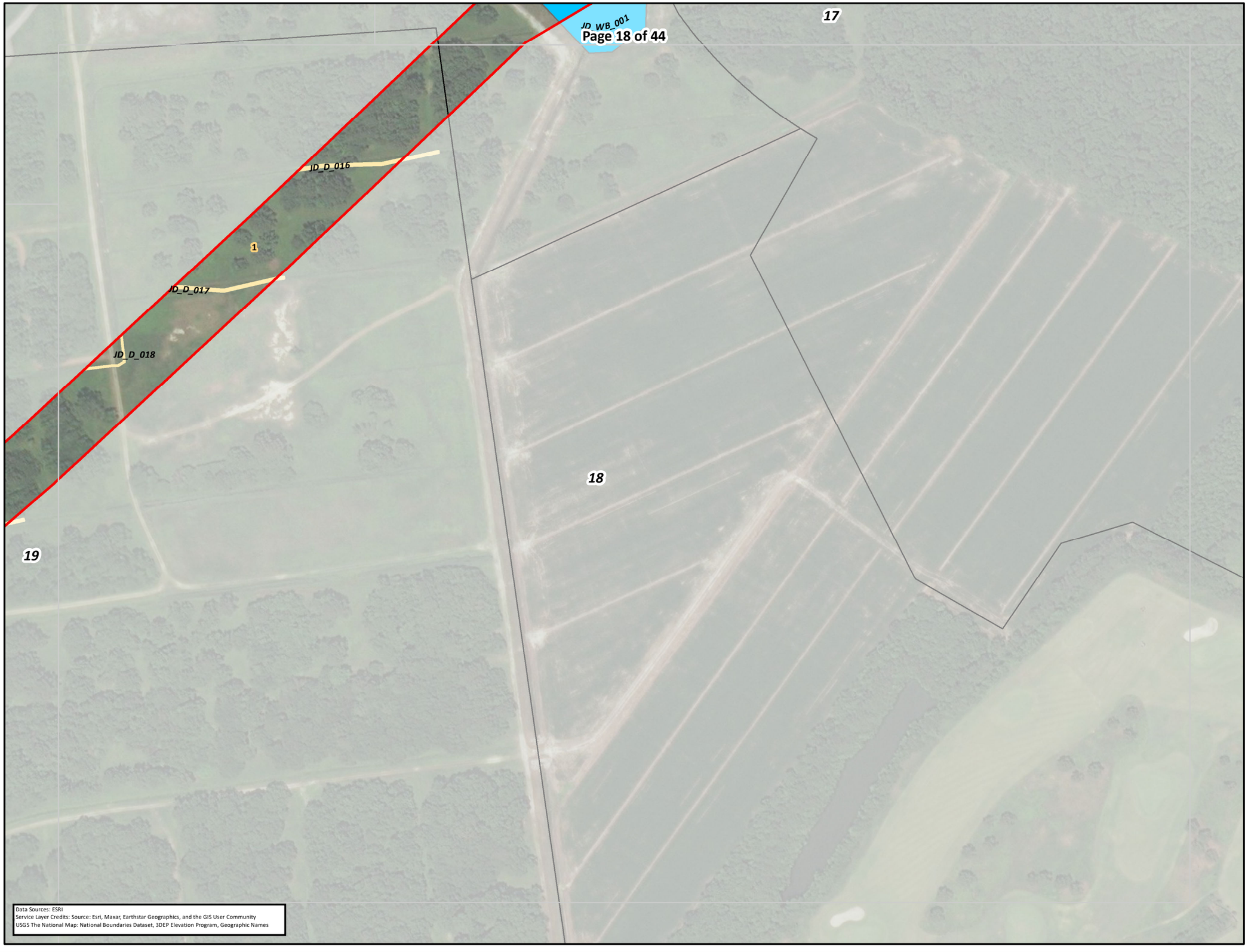
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

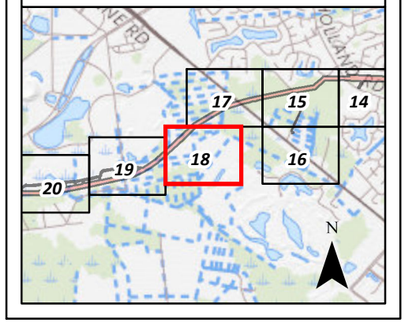
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

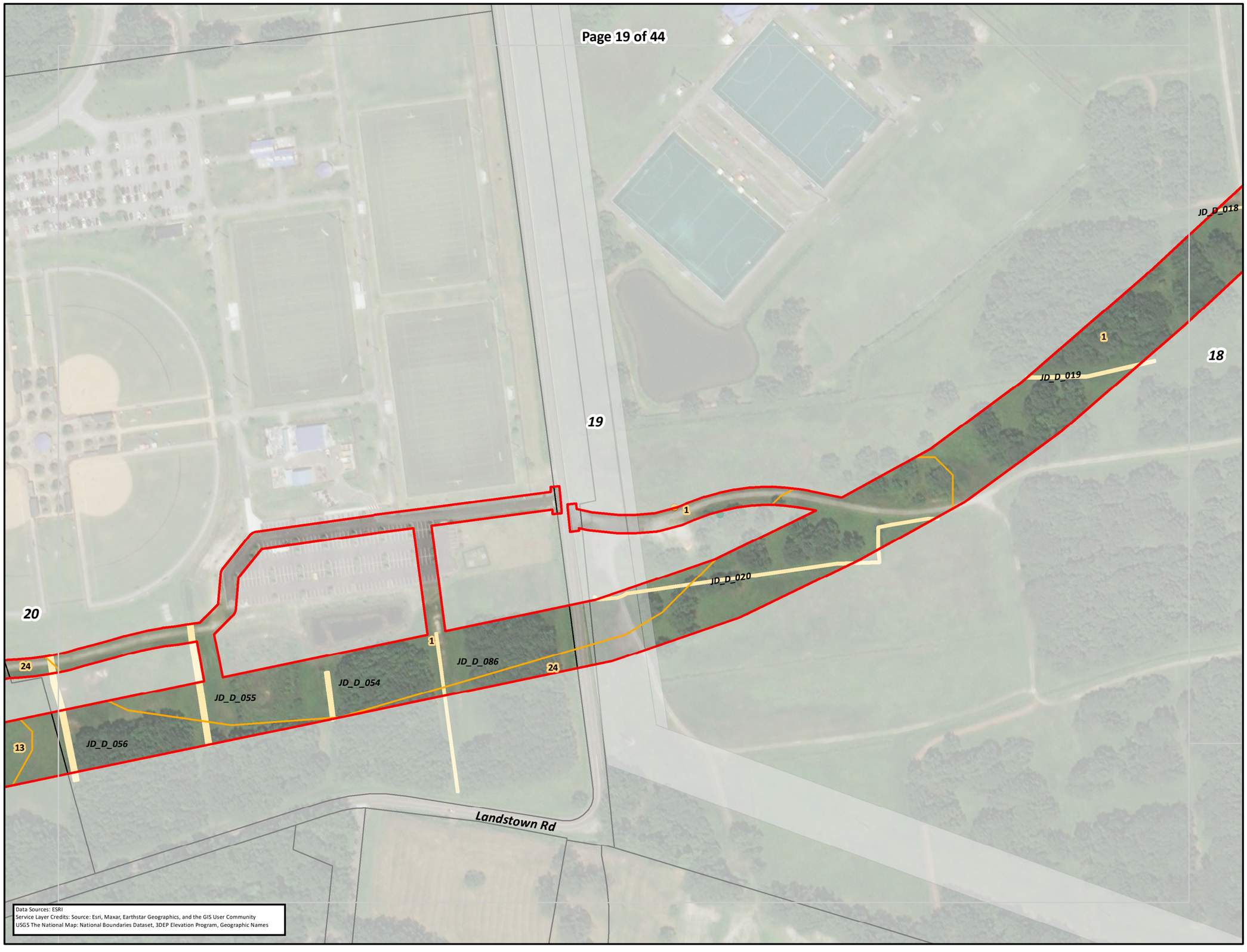
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

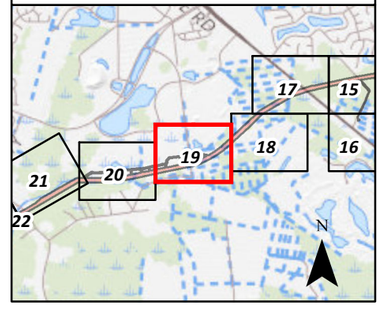
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

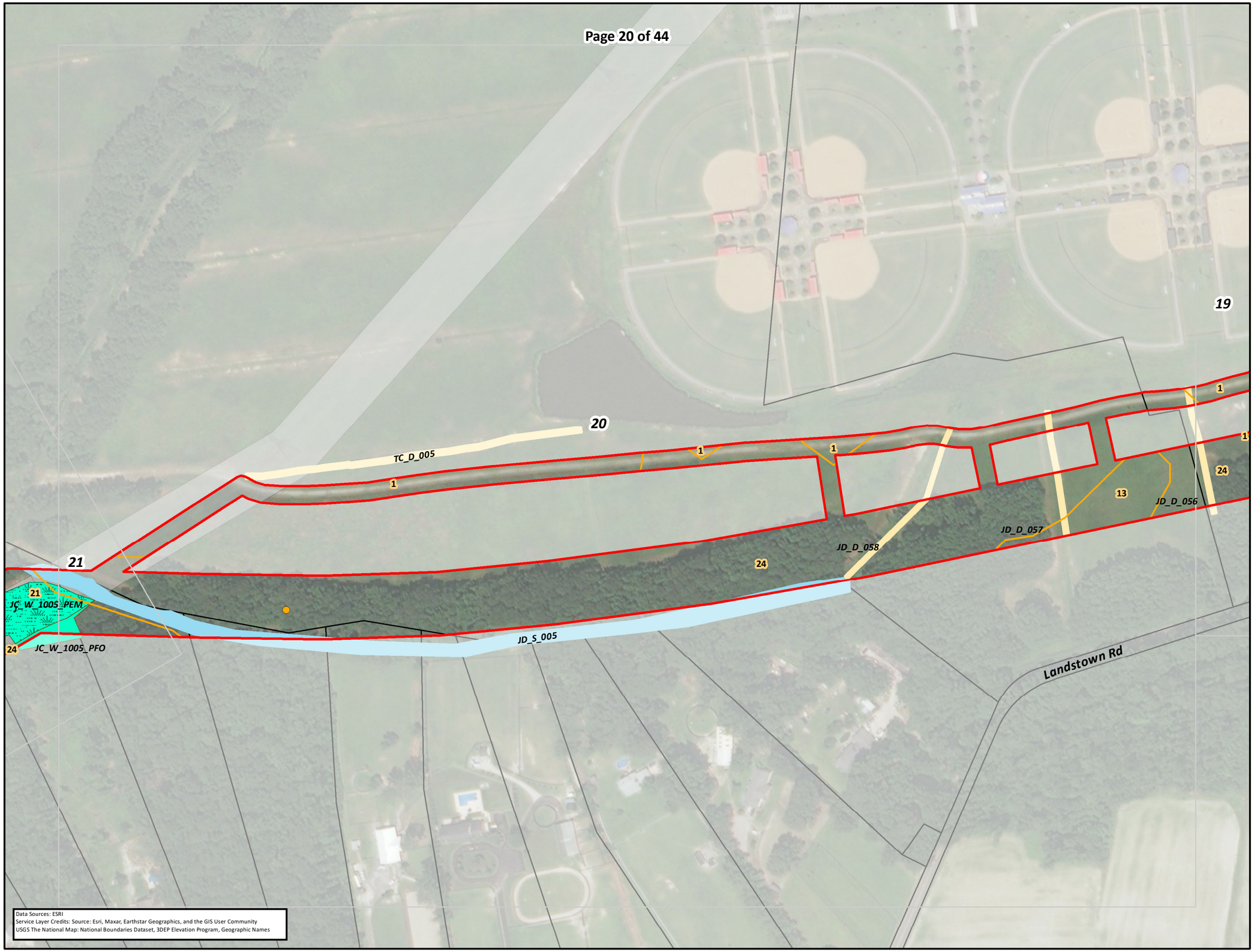
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

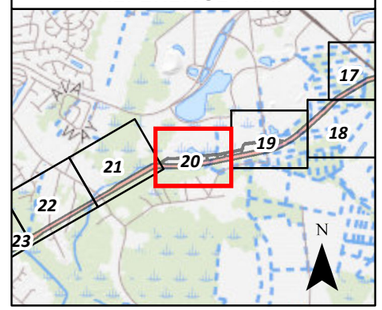
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

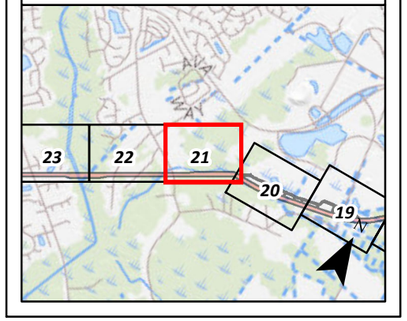
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

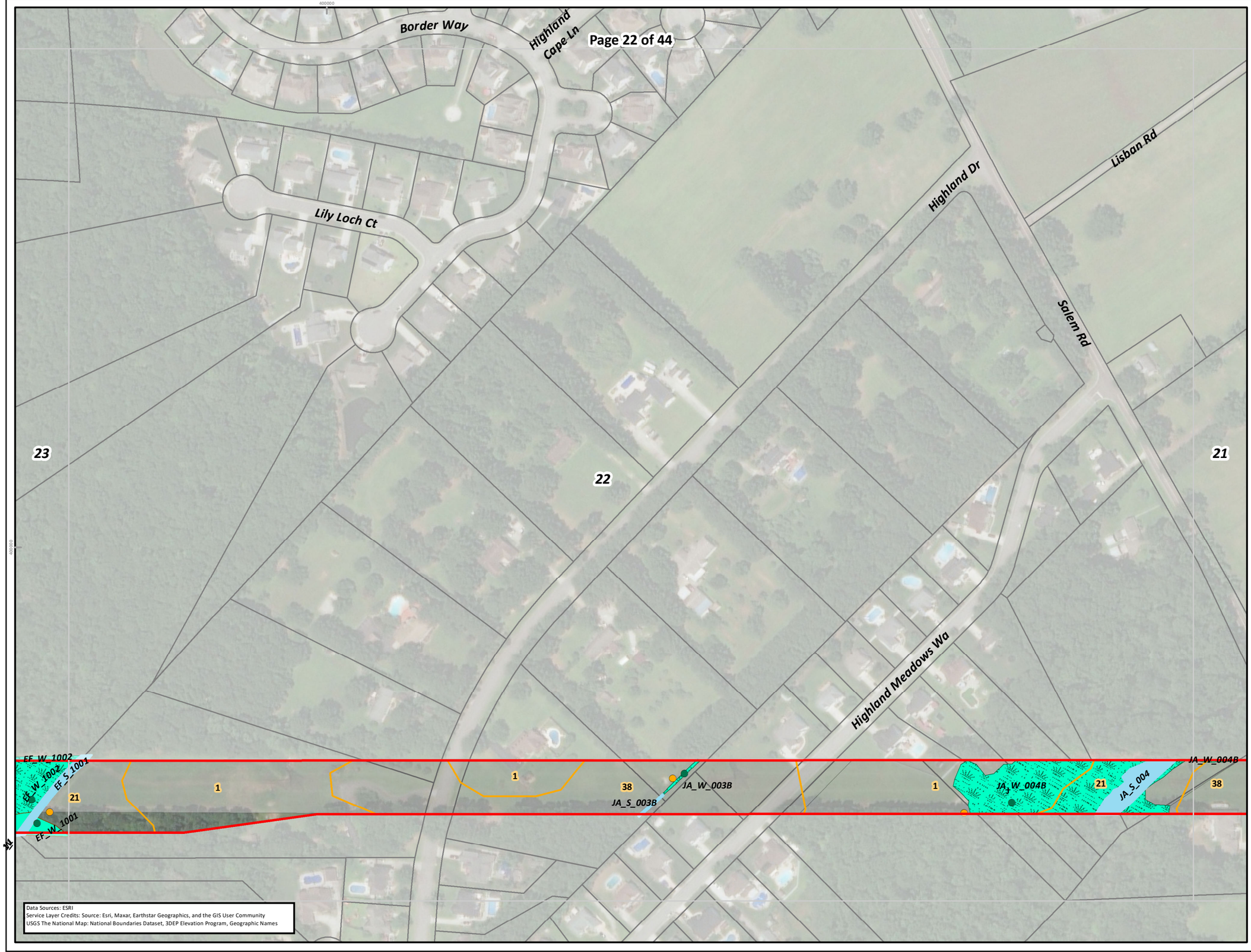
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

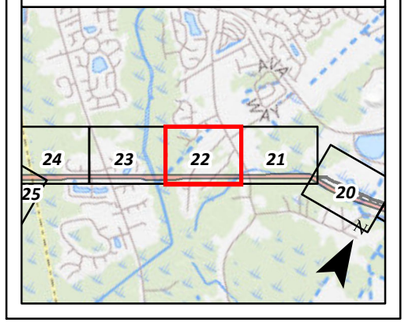
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

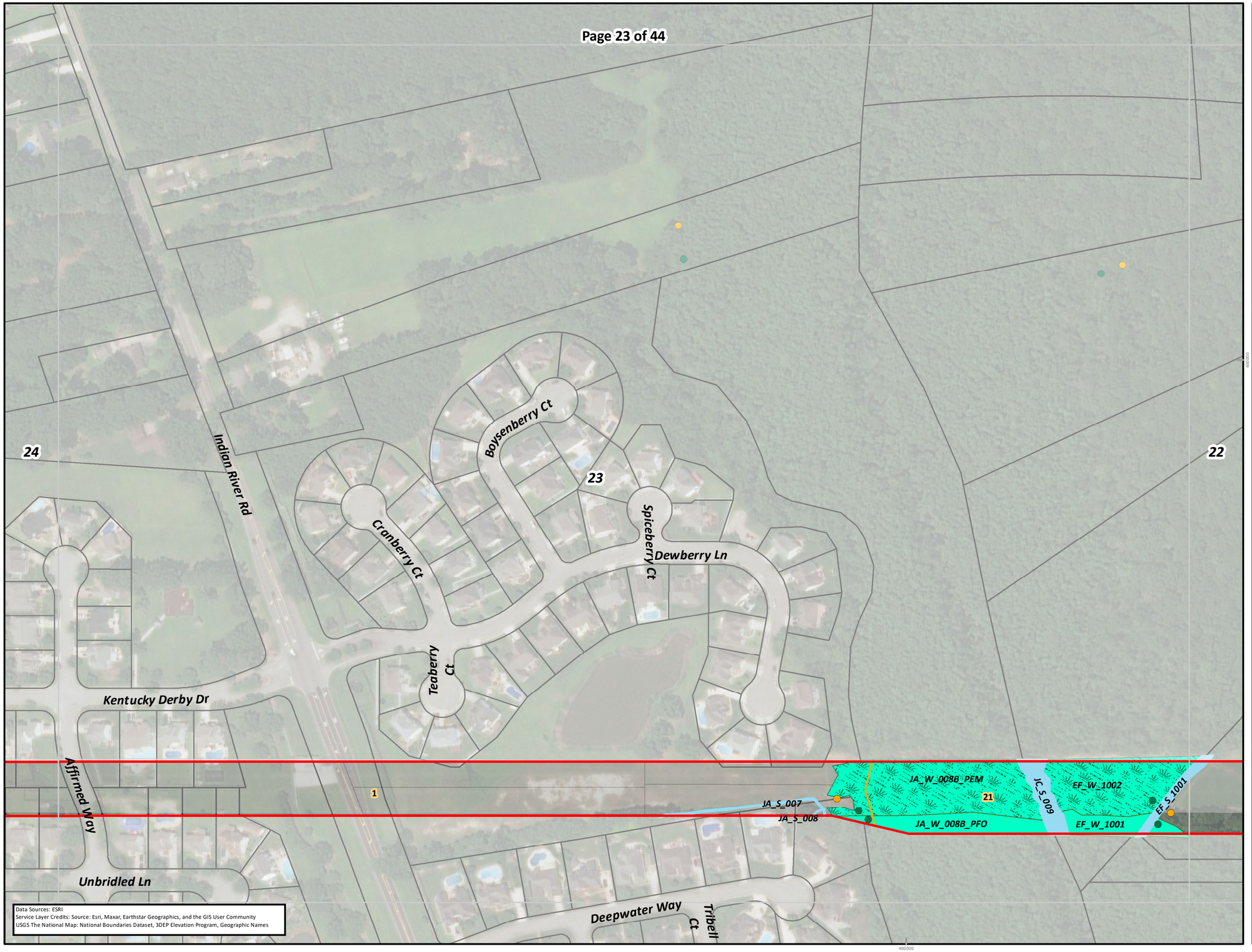
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

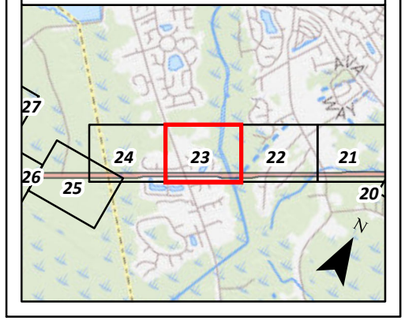
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

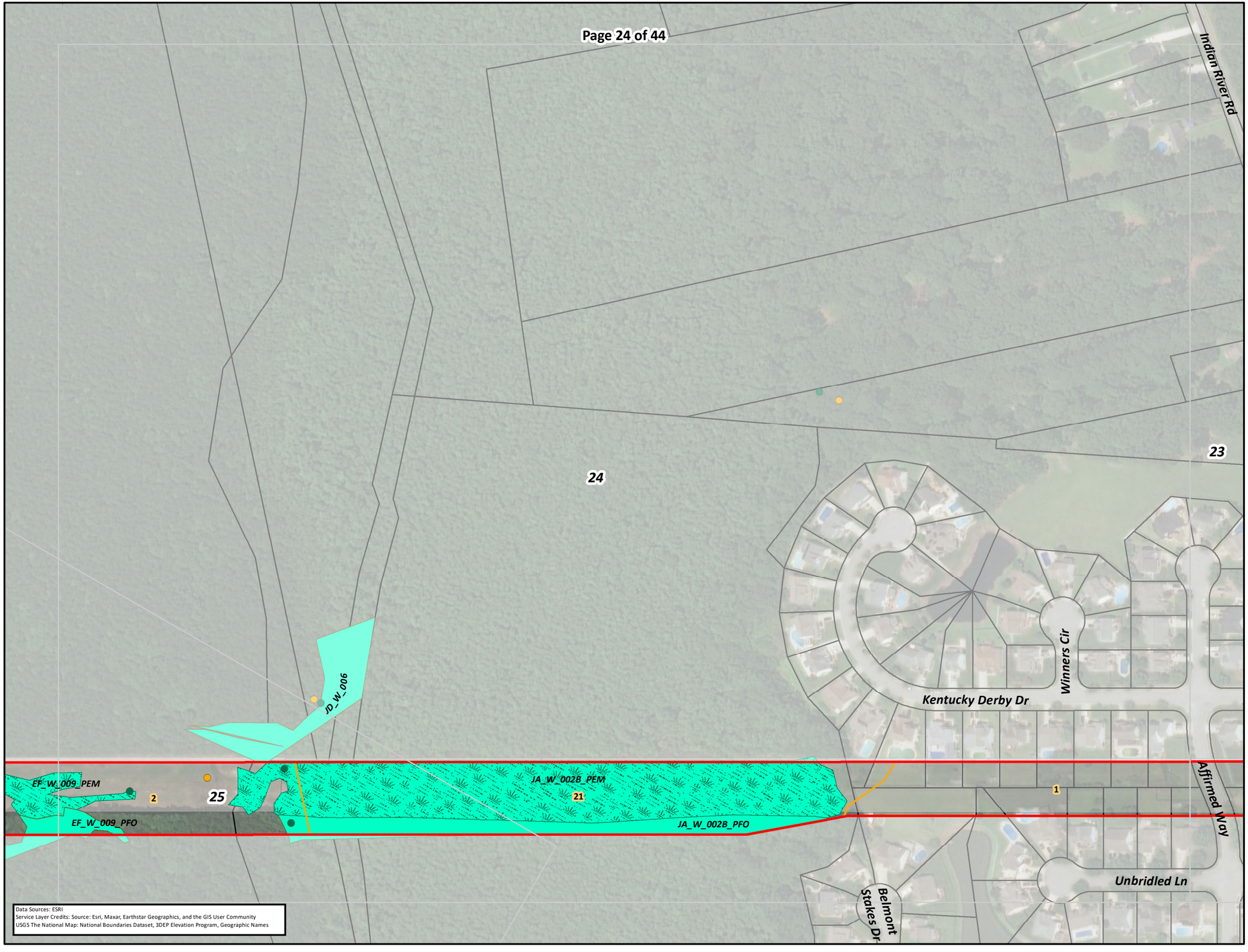
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

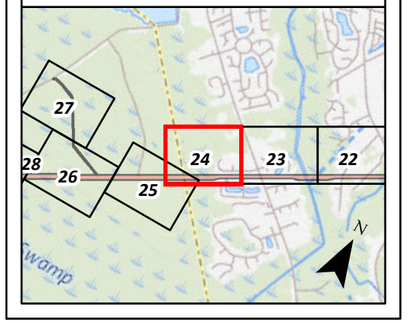
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

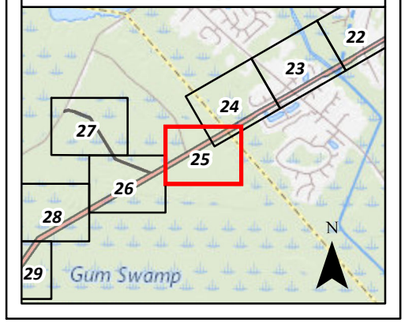
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

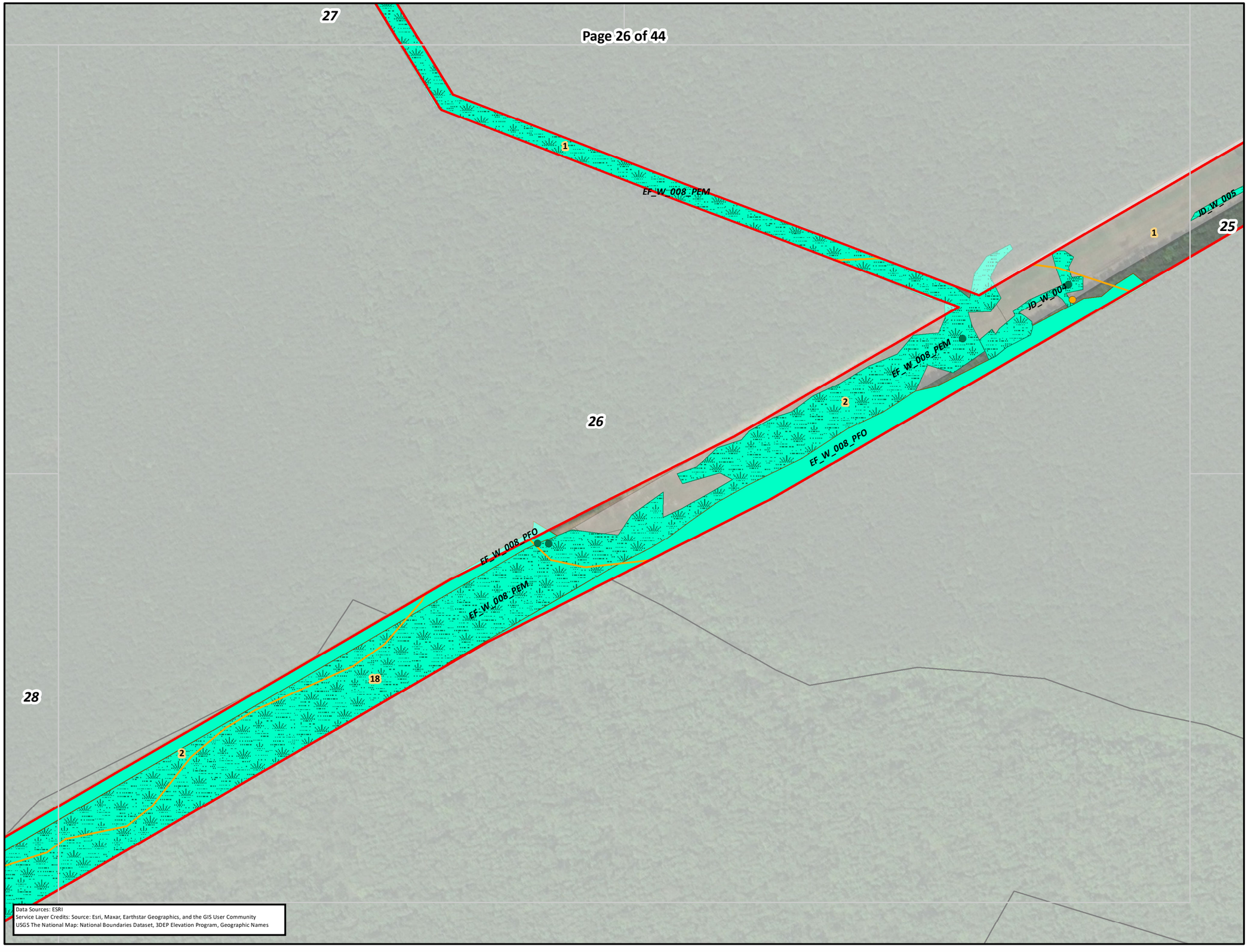
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line

- Mapbook Page
- Project LOD
- US Navy
- SMR

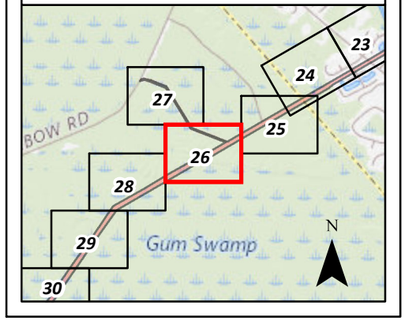
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

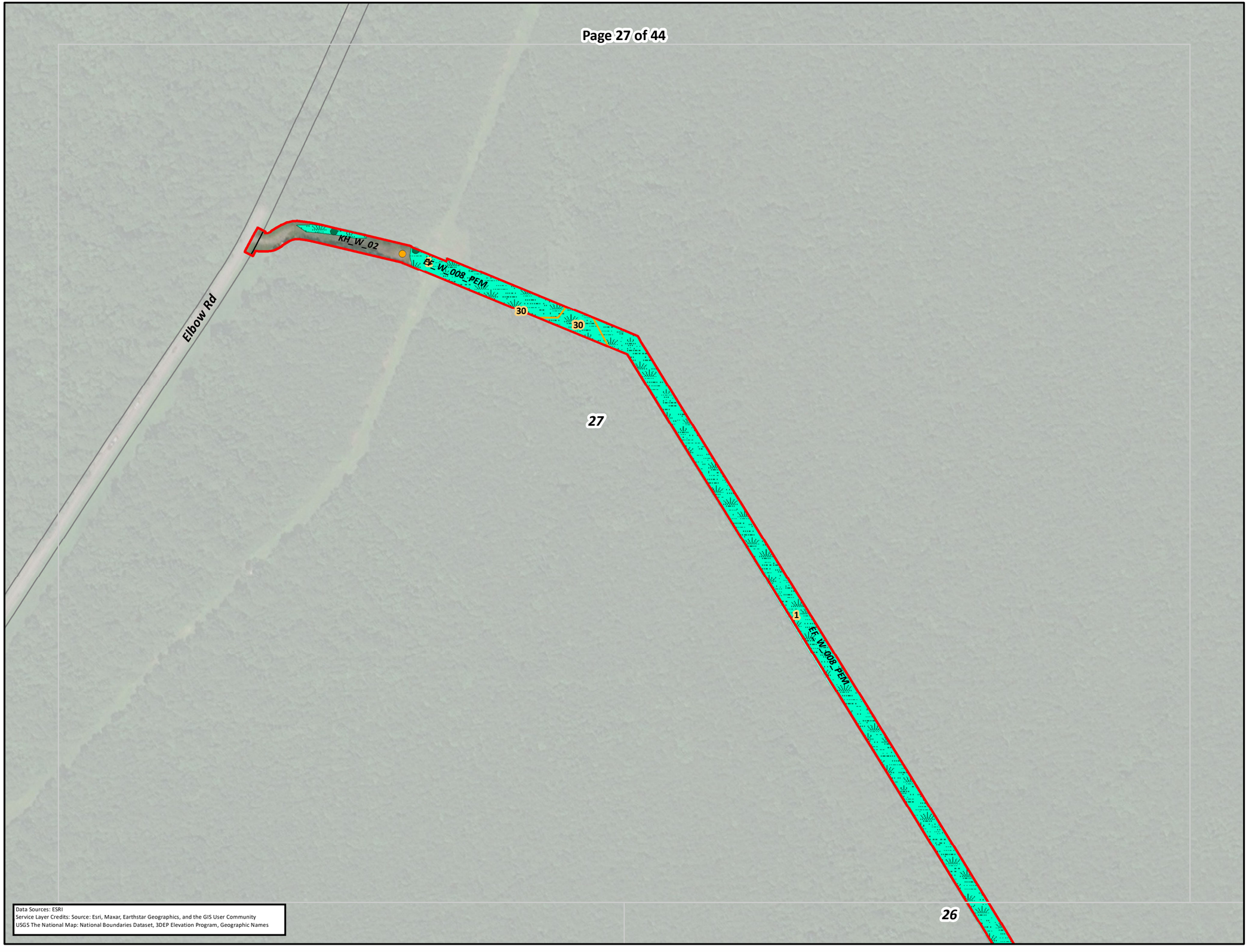
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

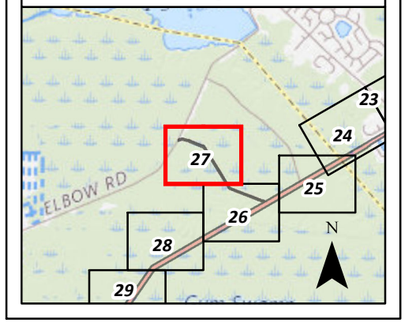
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

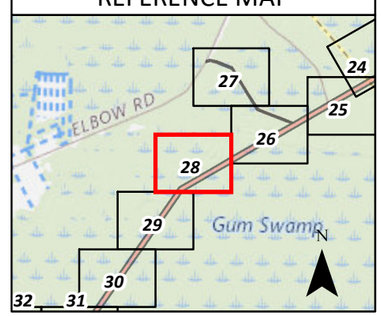
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

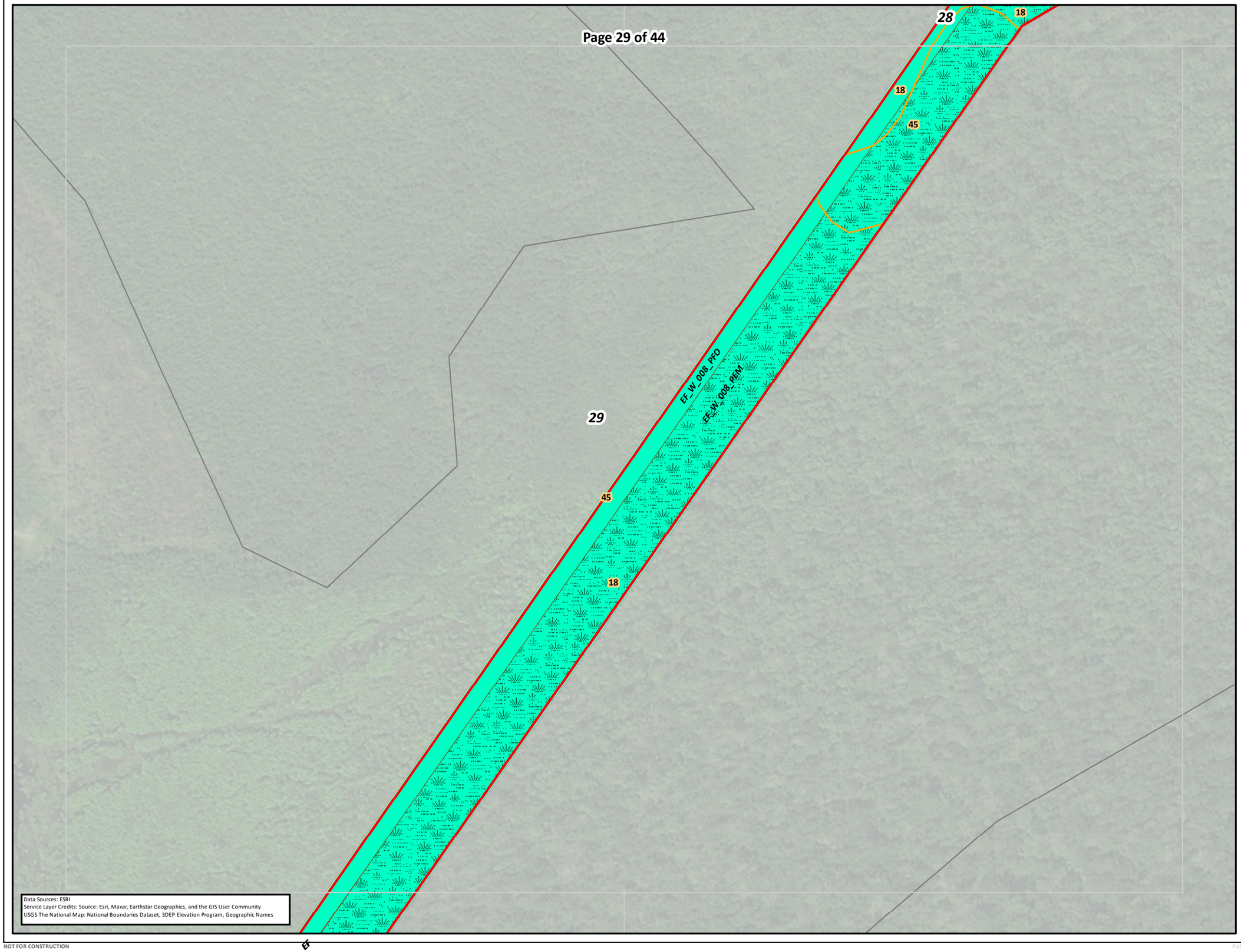
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

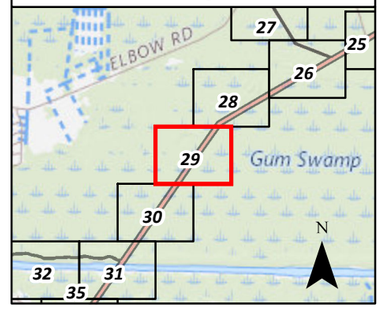
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

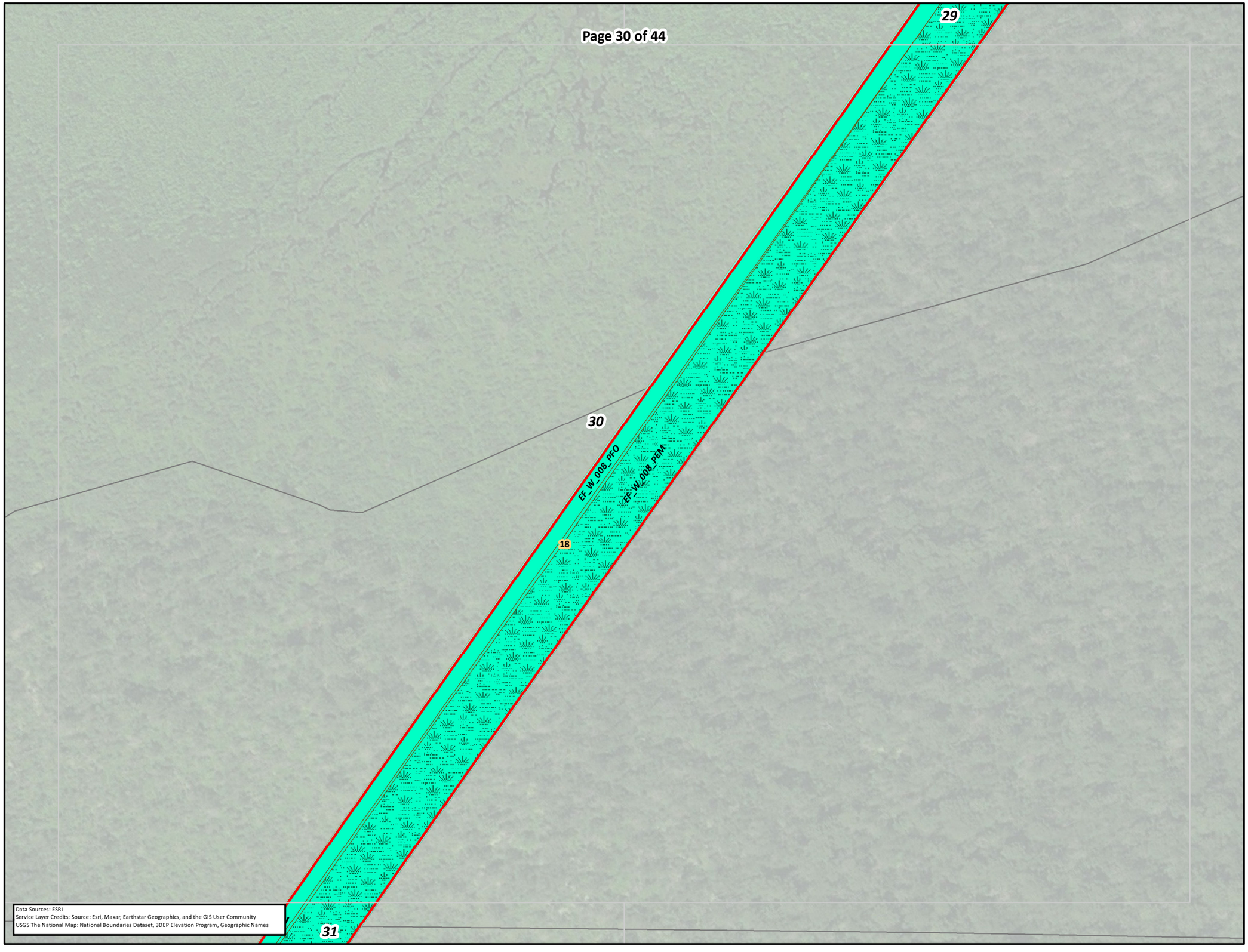
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

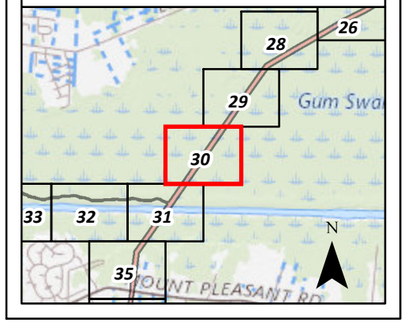
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line

- Mapbook Page
- Project LOD
- US Navy
- SMR

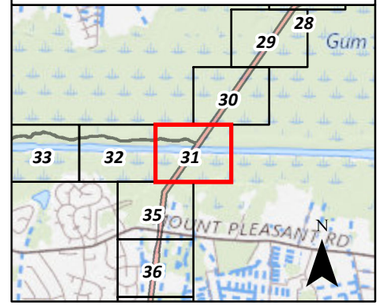
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

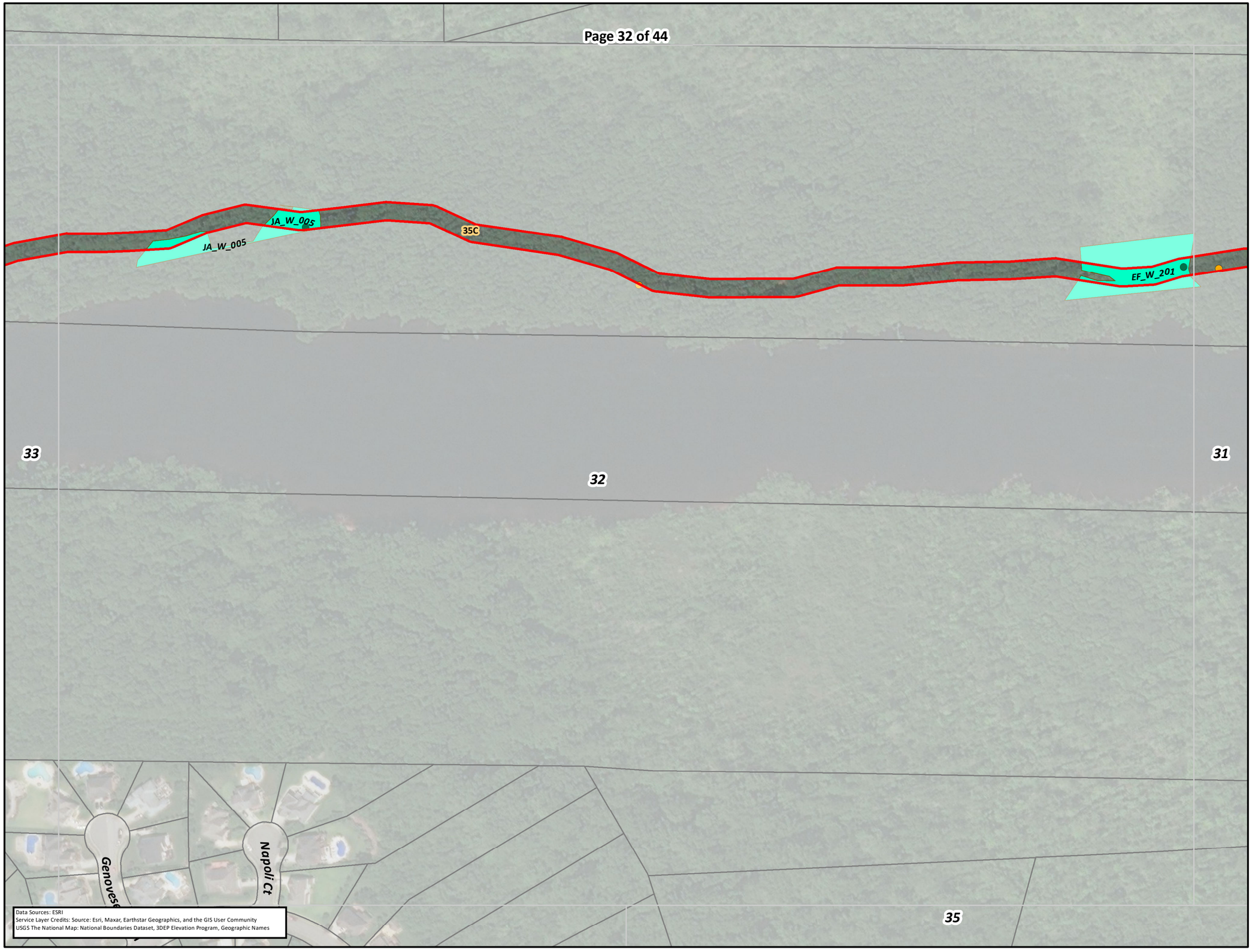
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

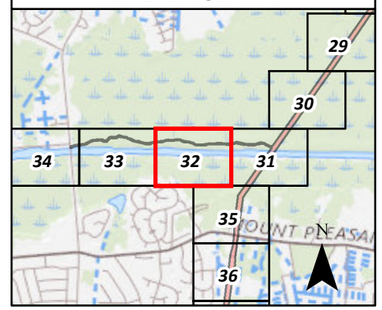
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

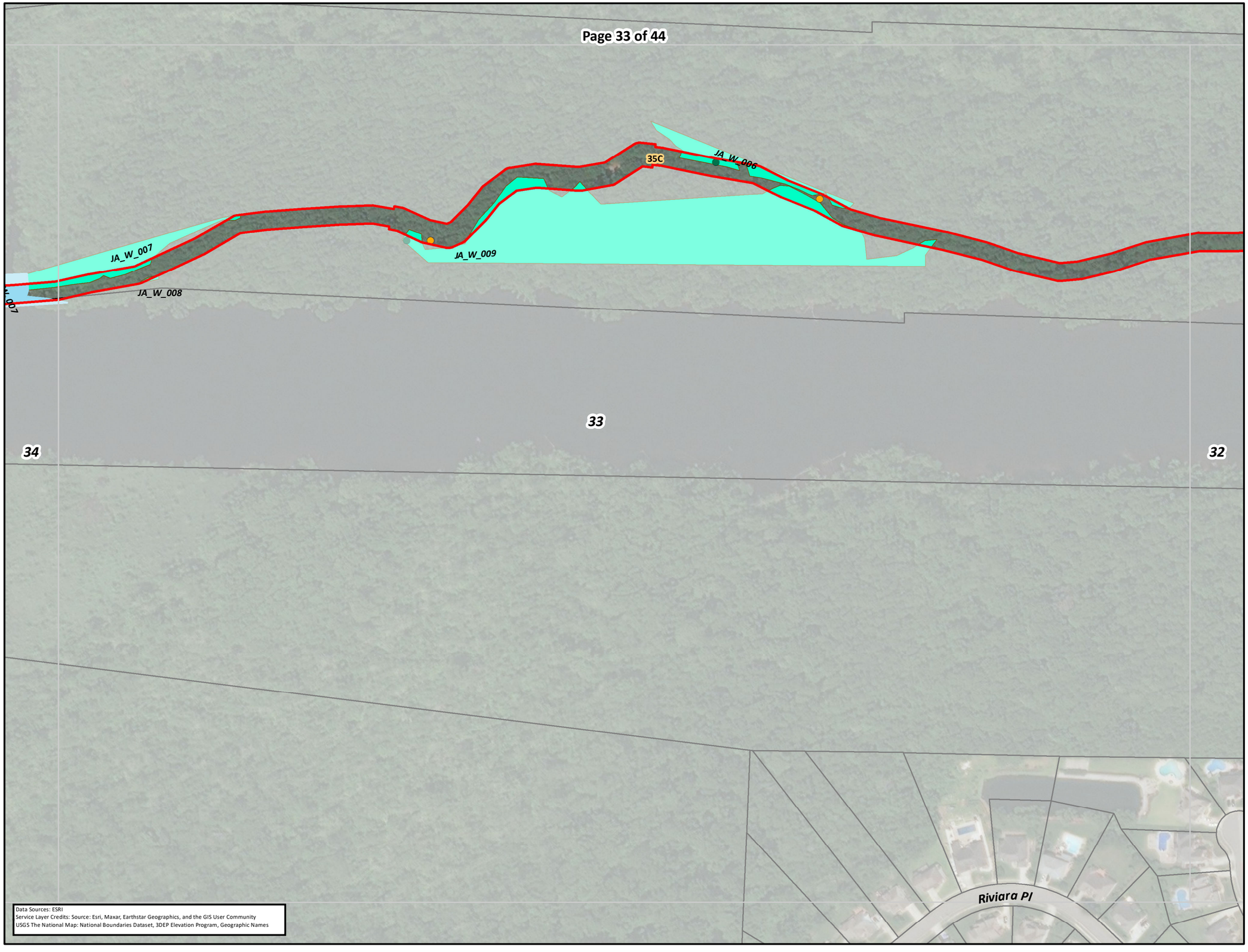
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

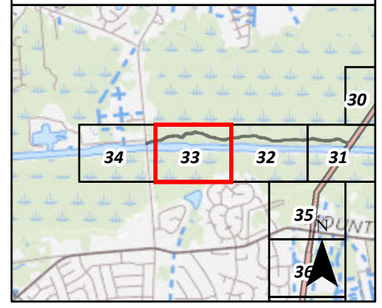
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

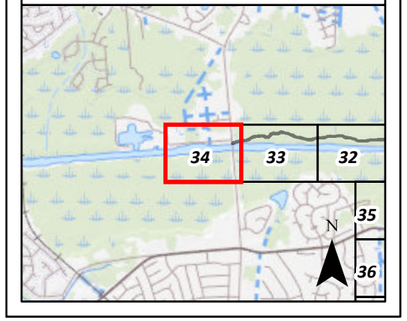
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

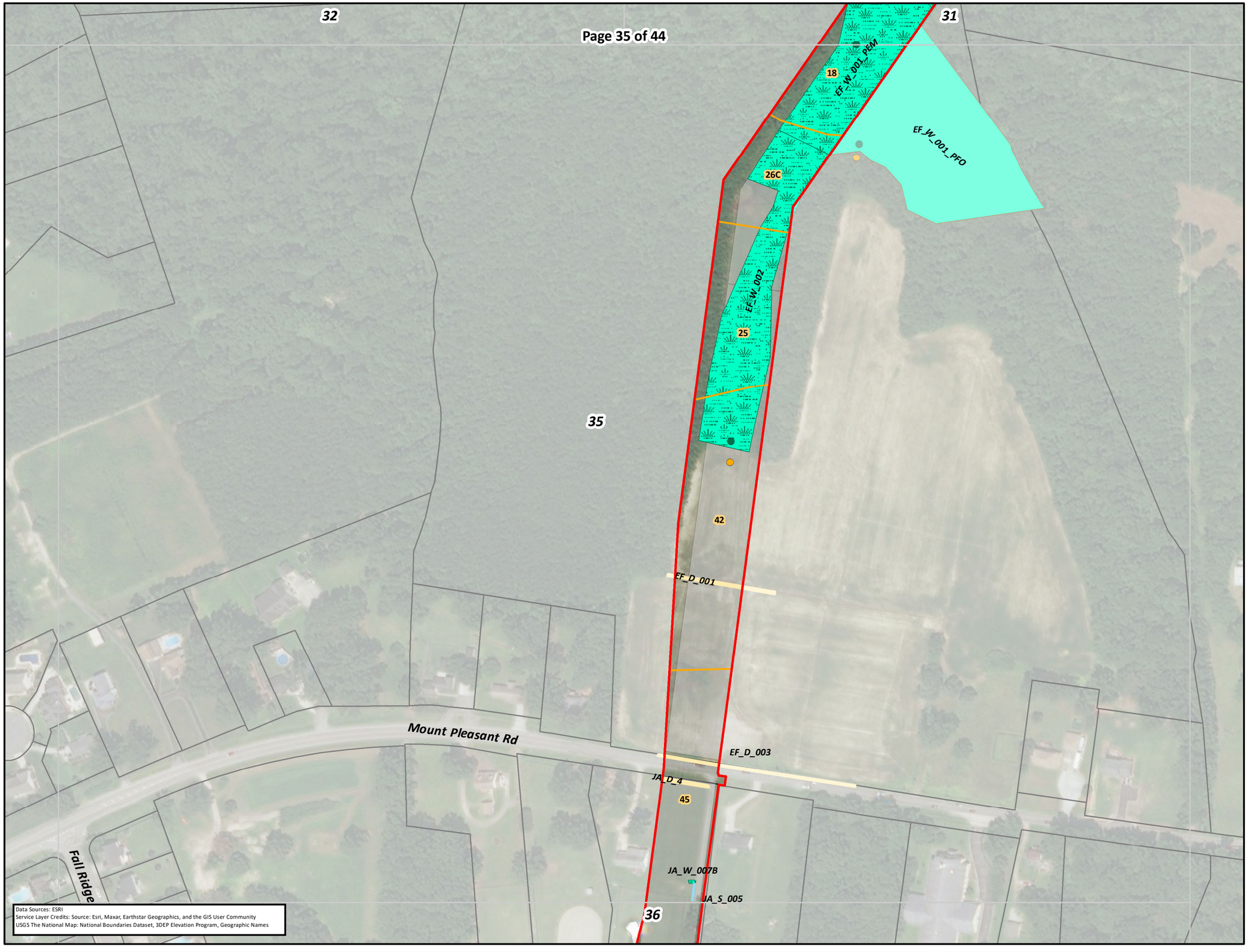
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

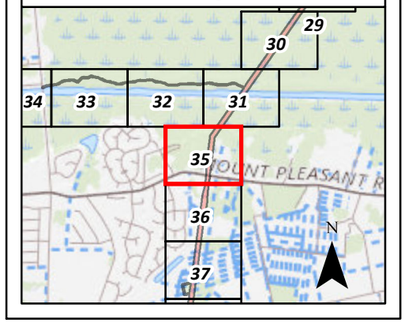
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

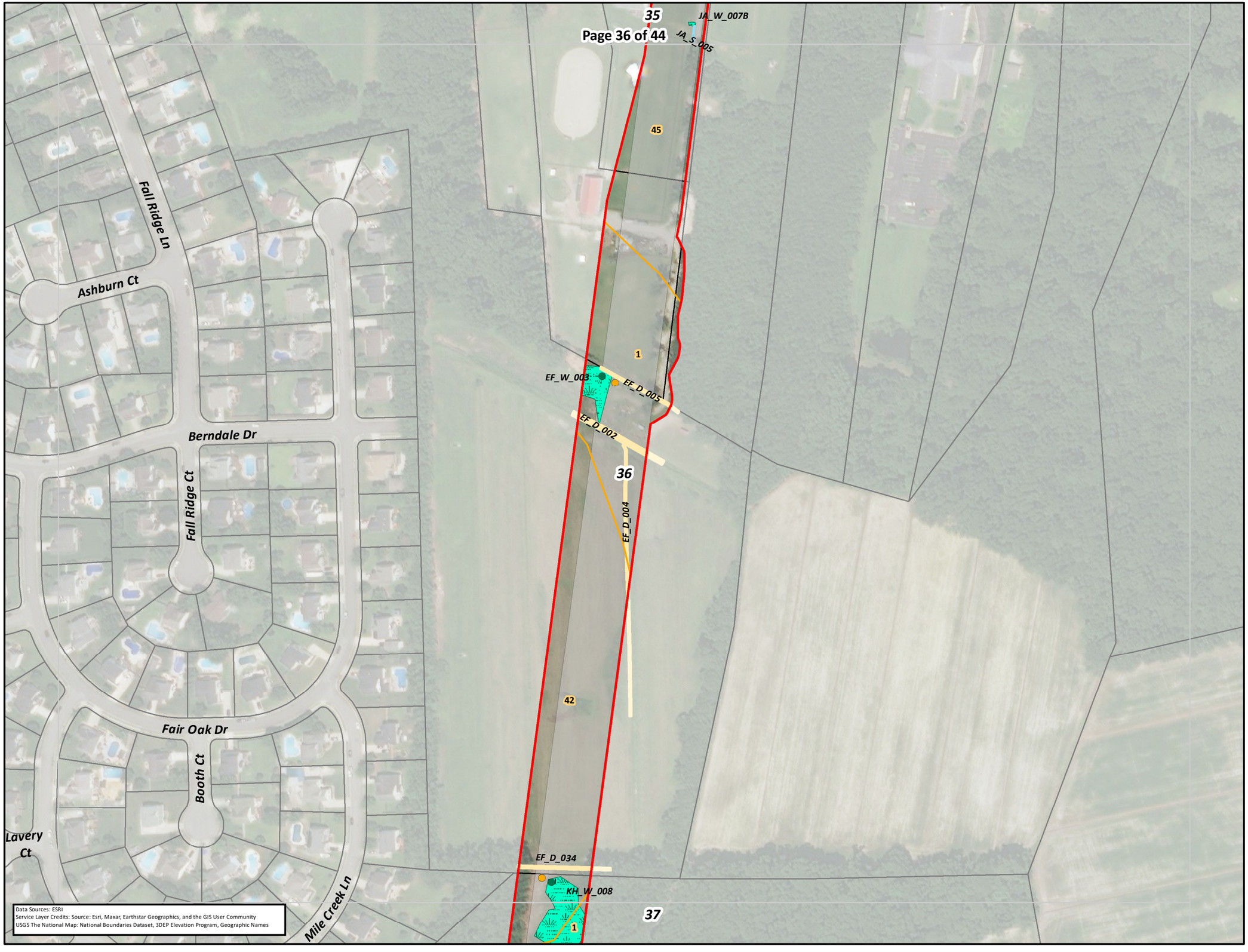
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

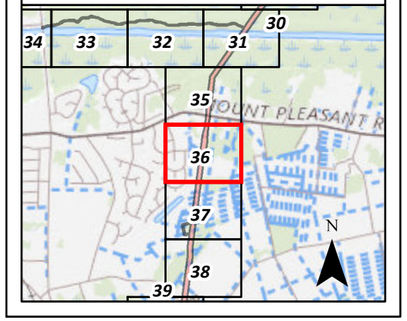
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

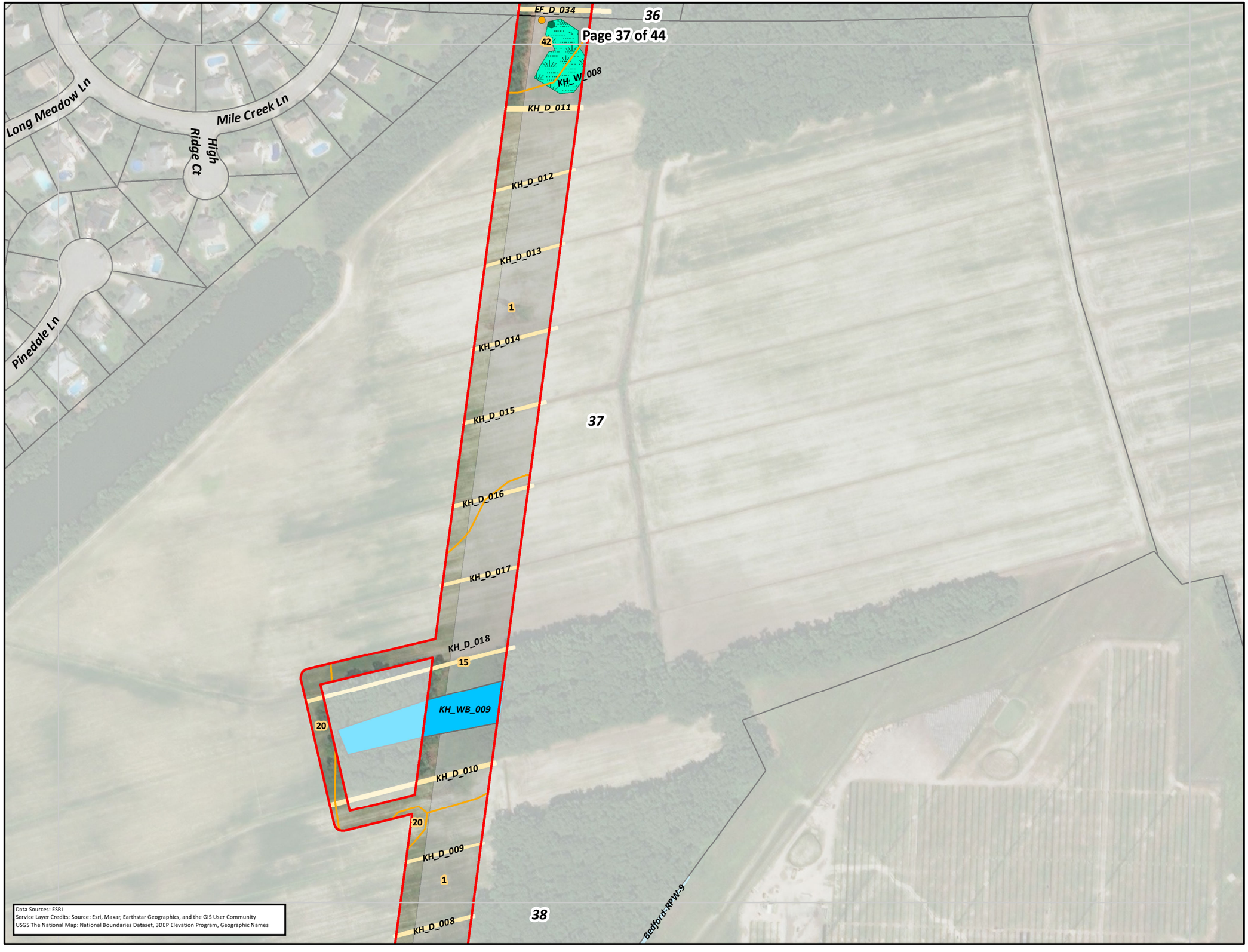
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

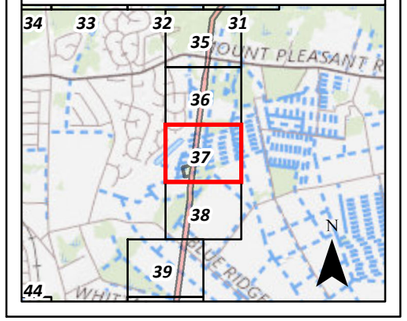
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

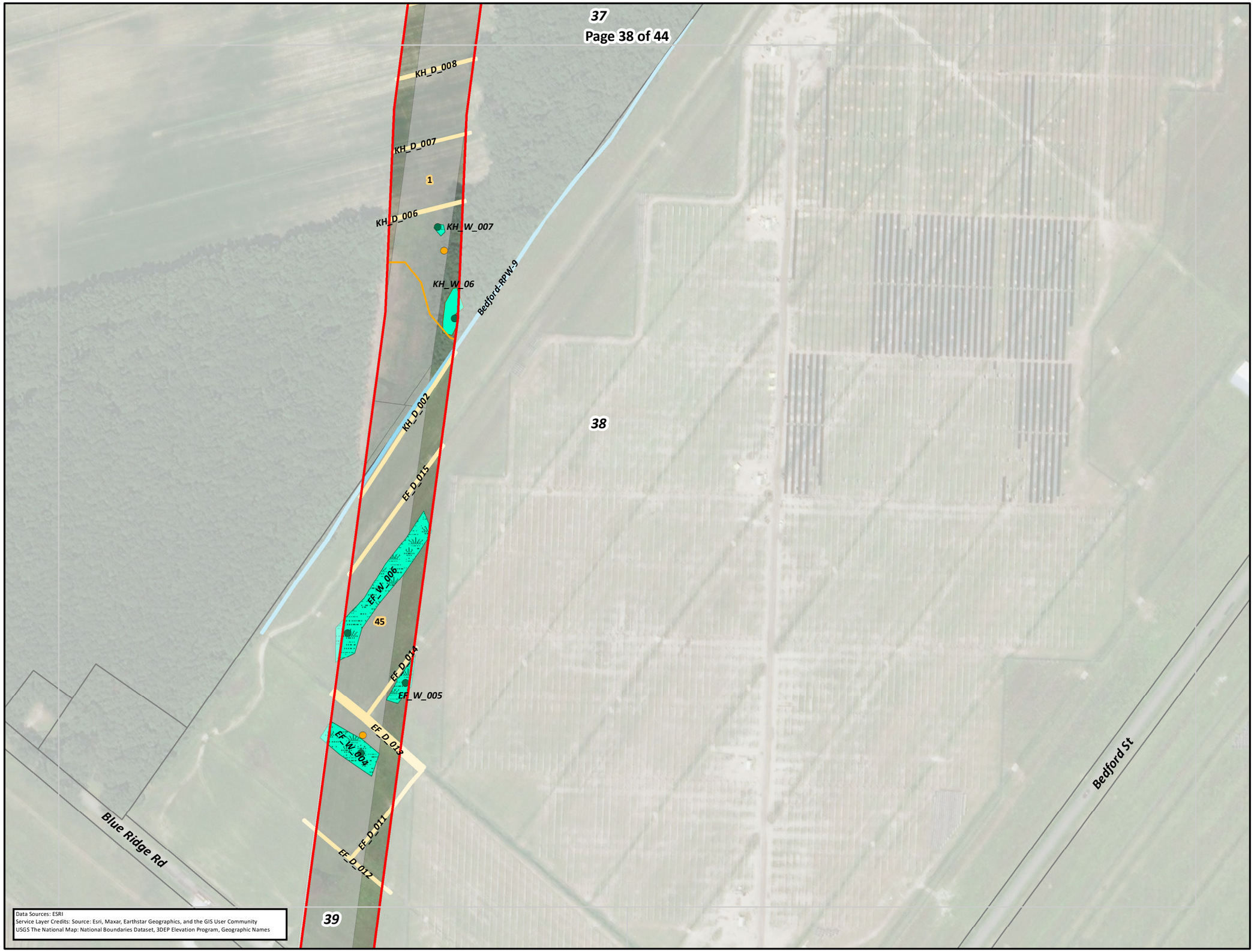
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_MapBook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

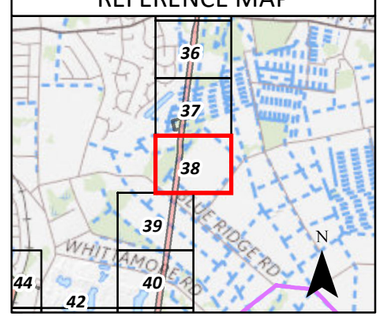
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

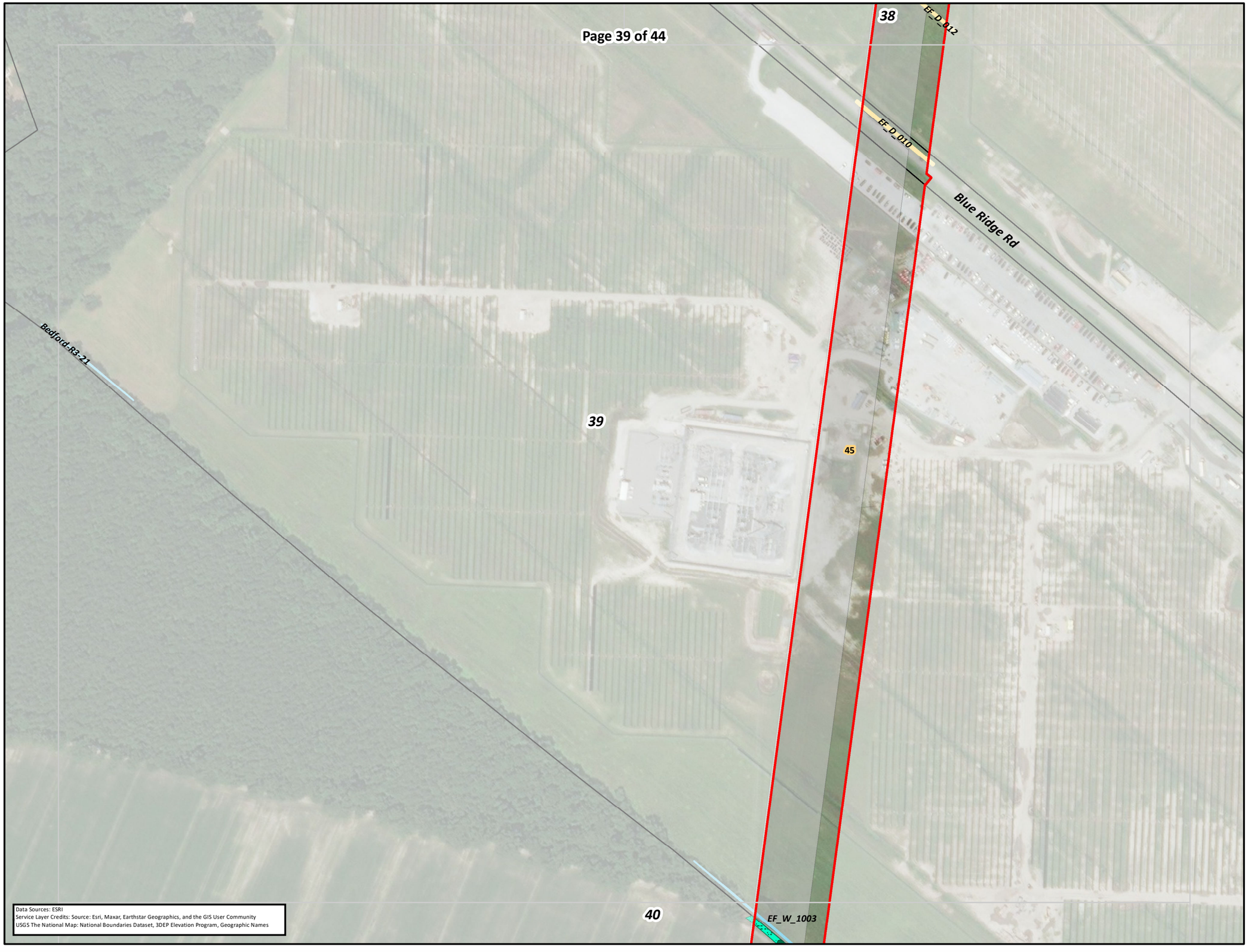
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

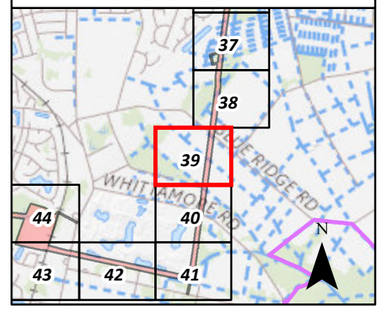
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

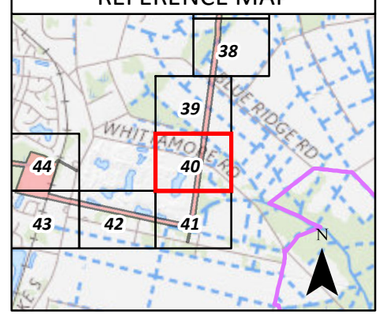
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

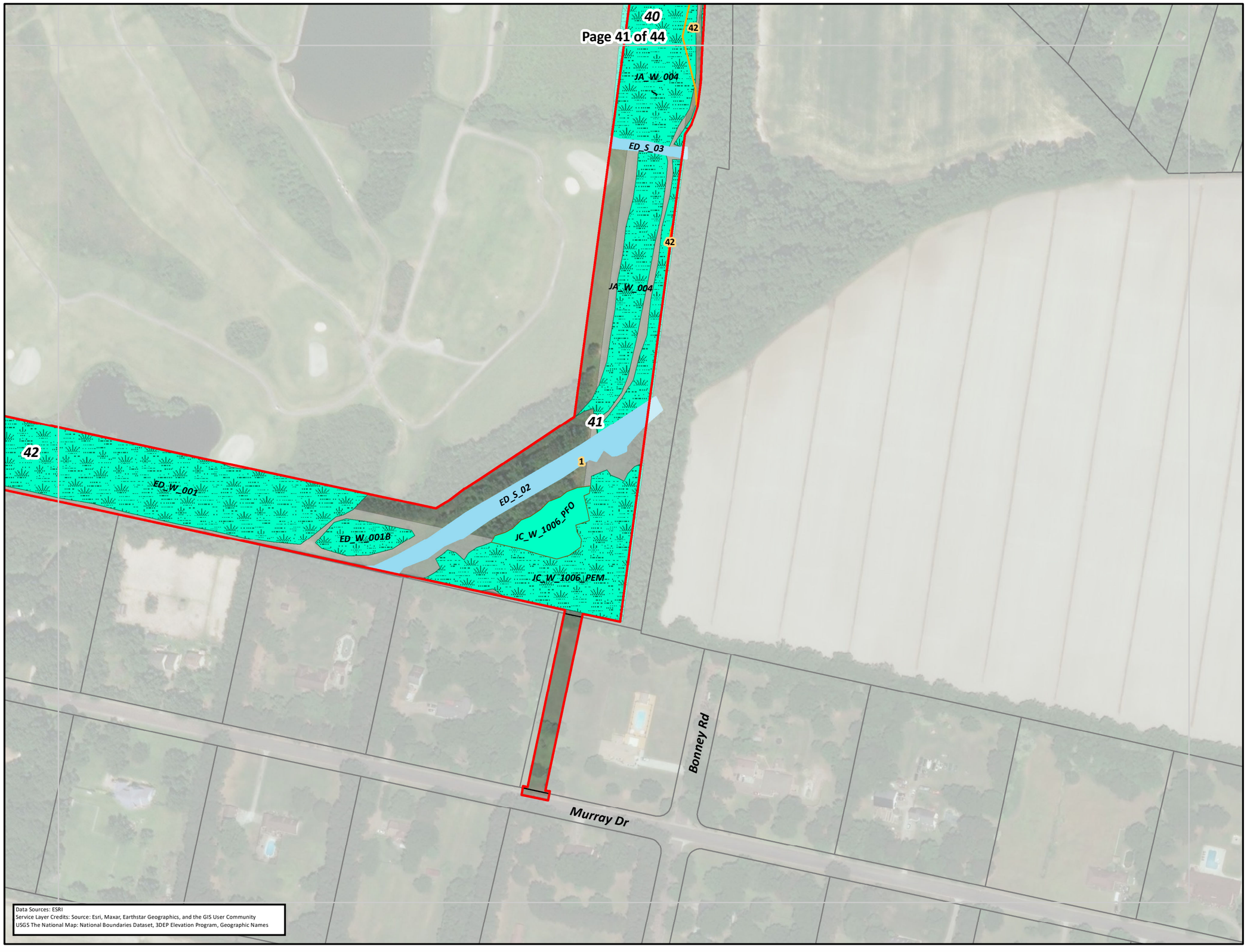
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

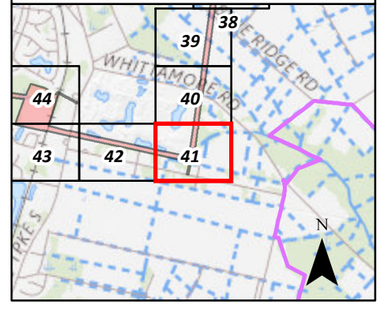
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

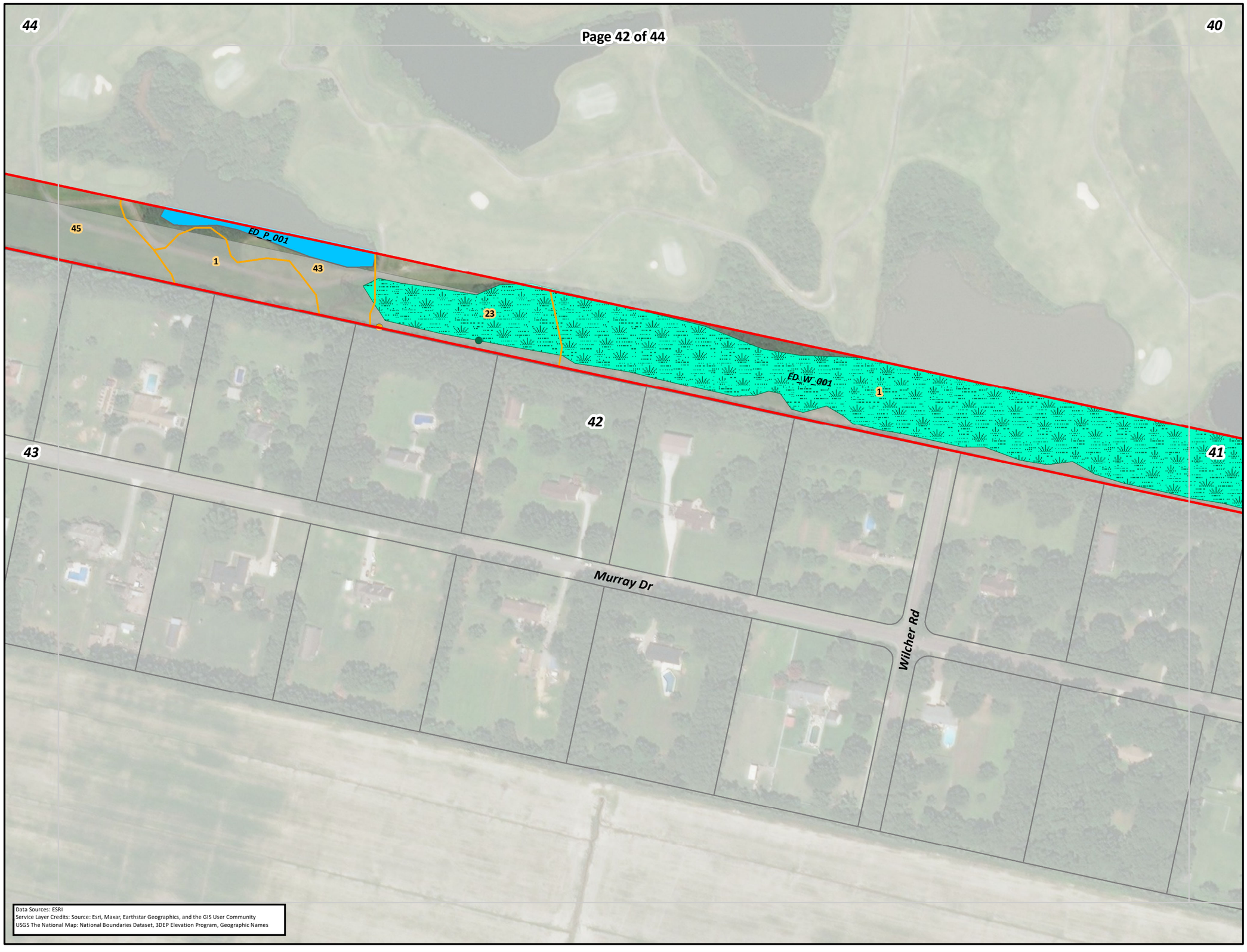
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

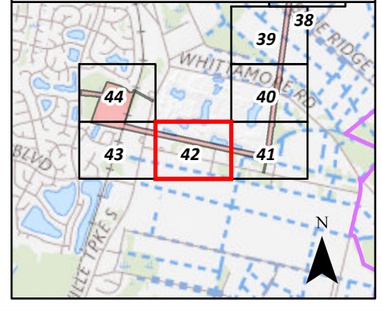
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Features with VEPCO nomenclature are not included in this package for review but as reference. Features are covered under a previous PJD (See Wetland Delineation Report Site Information Summary)

Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

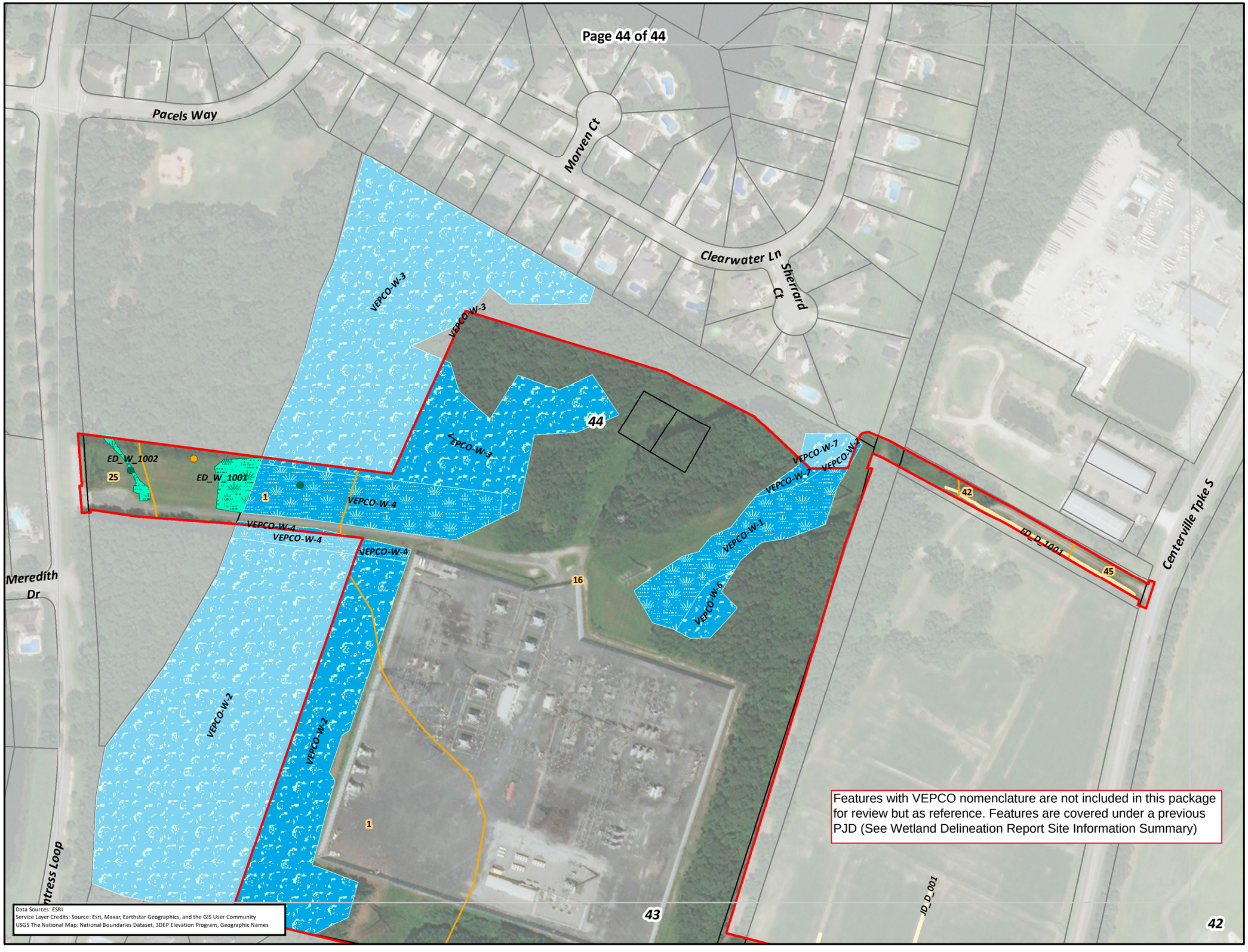
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_AquaticResources_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- SMR Wetland Field Point
- Dominion/Oceana Culvert
- Wetland Data Point
- Upland Data Point
- USDA NRCS Soils (SSURGO)
- Surveyed Ditch (Line)
- Surveyed Ditch (Area)
- Surveyed Stream (Line)
- Surveyed Stream (Area)
- Surveyed Waterbody

Surveyed Wetland

- Emergent, SMR
- Emergent, Tetra Tech
- Emergent, VEPCO
- Forested, SMR
- Forested, Tetra Tech
- Forested, VEPCO
- Scrub-Shrub, SMR
- Scrub-Shrub, Tetra Tech
- Existing Dominion Transmission ROW
- Parcel Line
- Mapbook Page
- Project LOD
- US Navy
- SMR

Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP

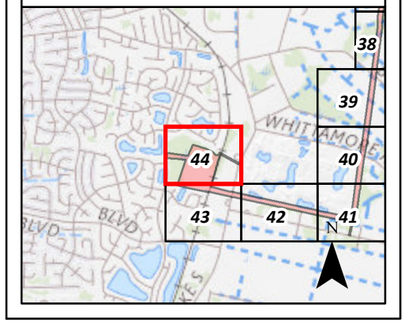
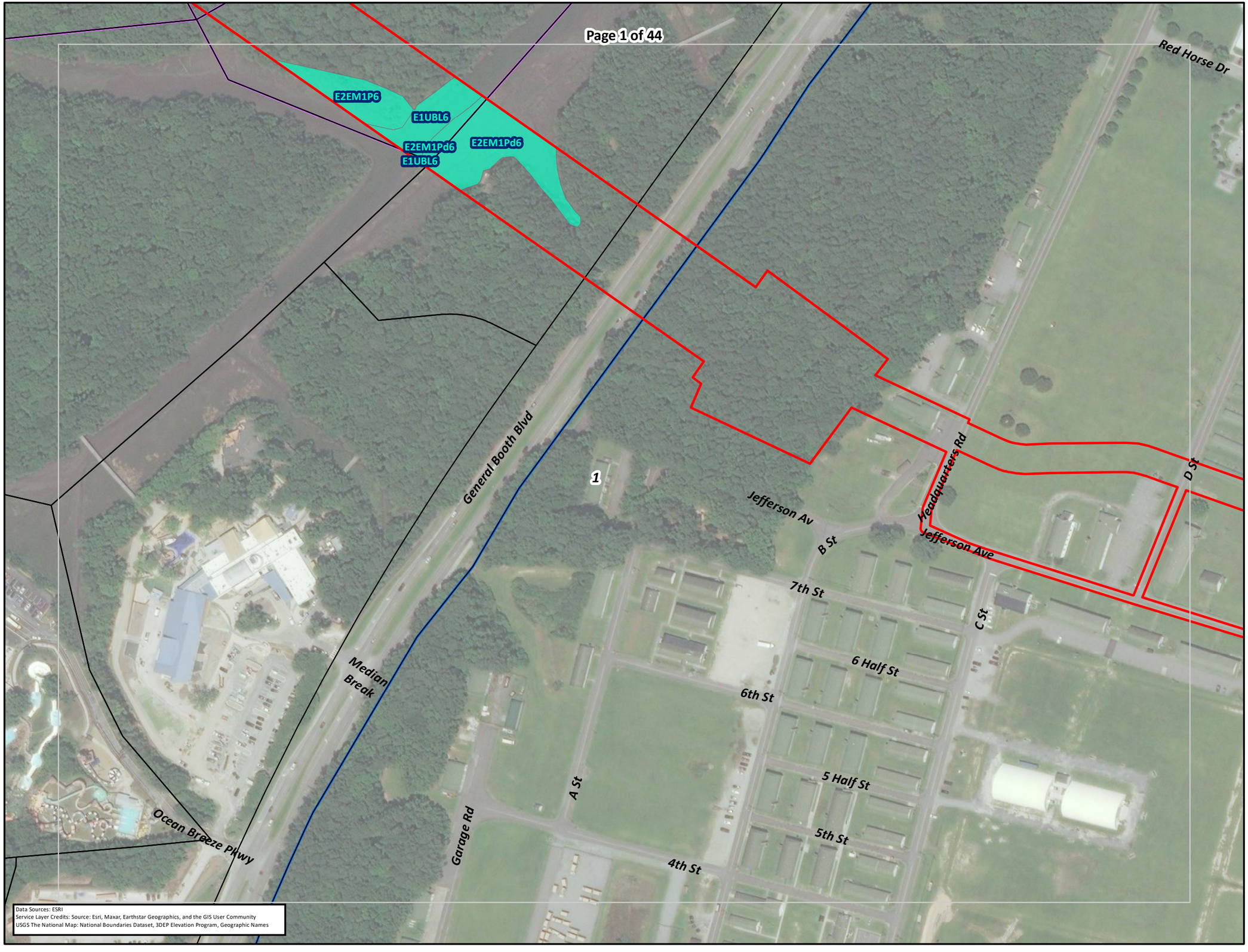


FIGURE 3: NATIONAL WETLANDS INVENTORY MAPBOOK



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

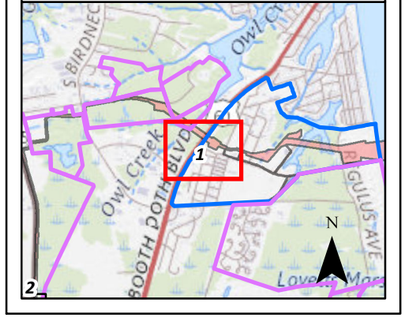
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

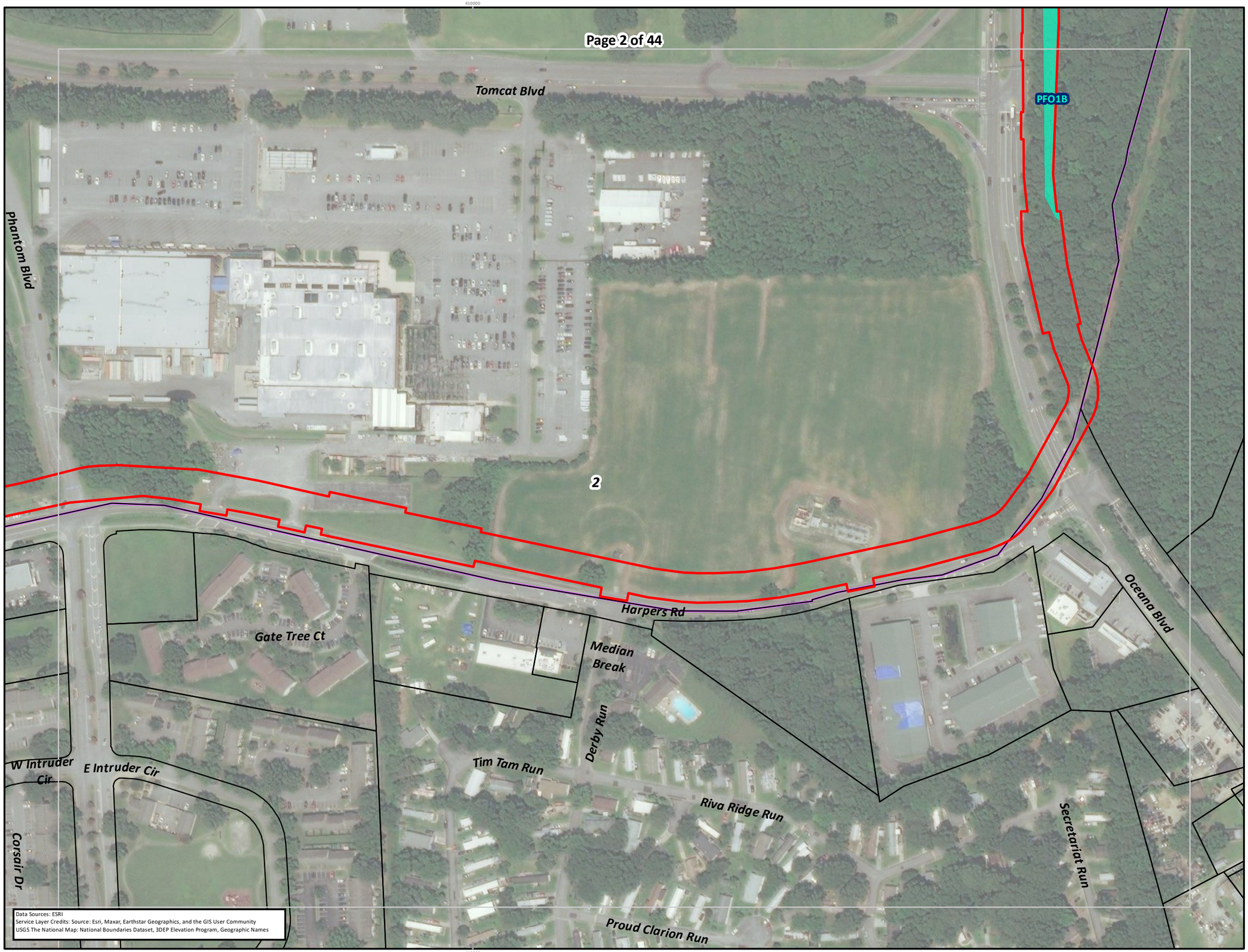
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

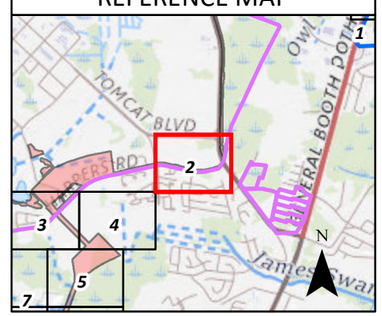
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

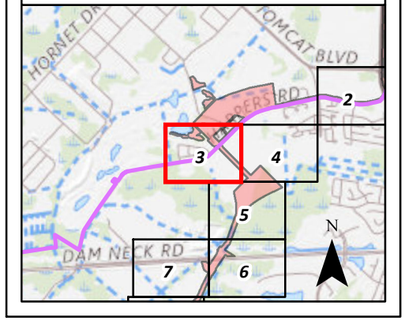
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

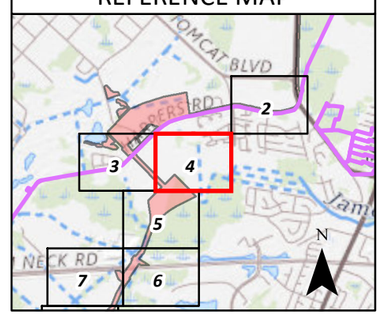
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

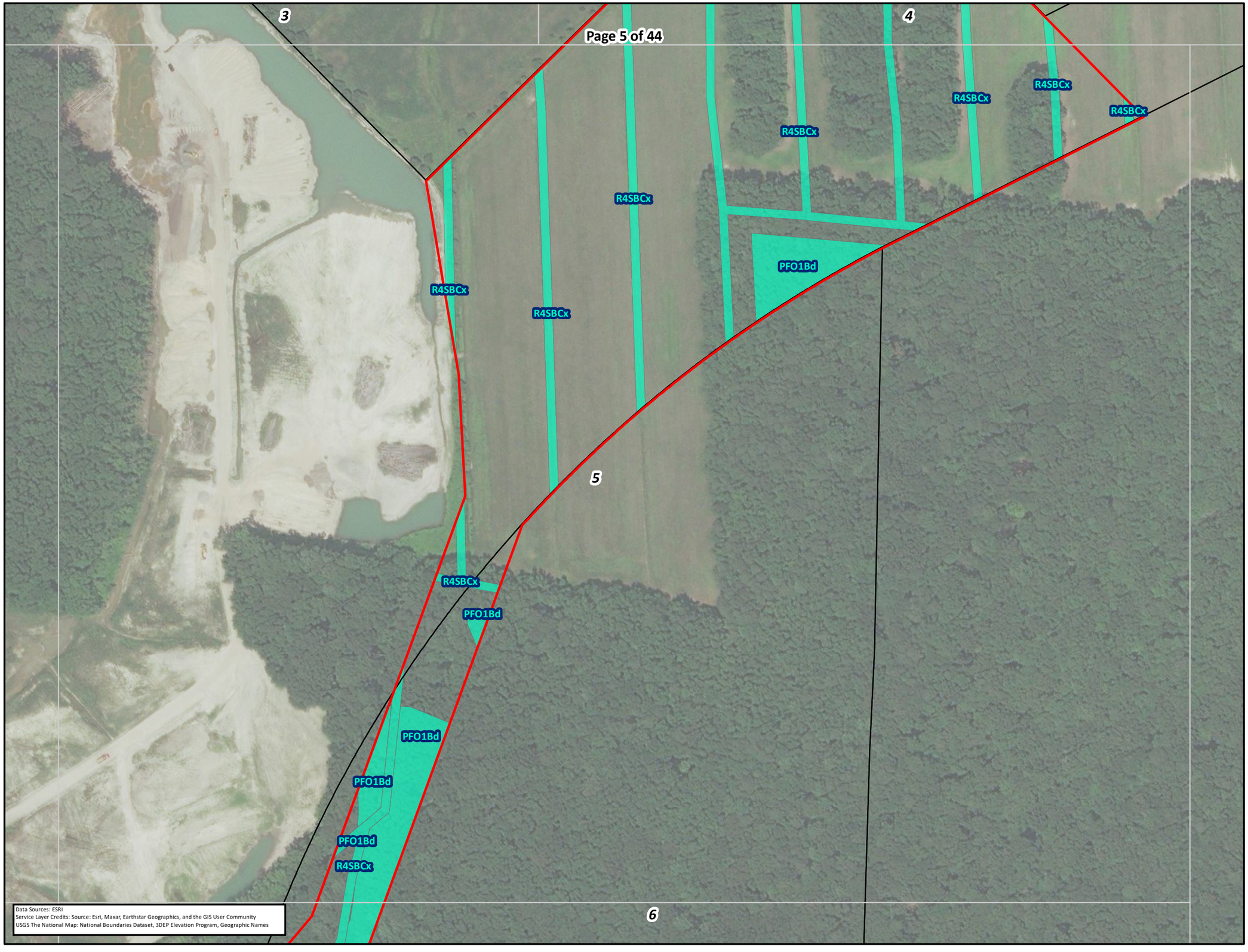
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

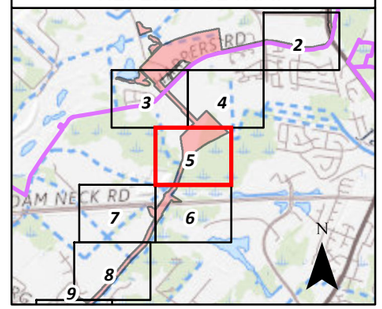
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

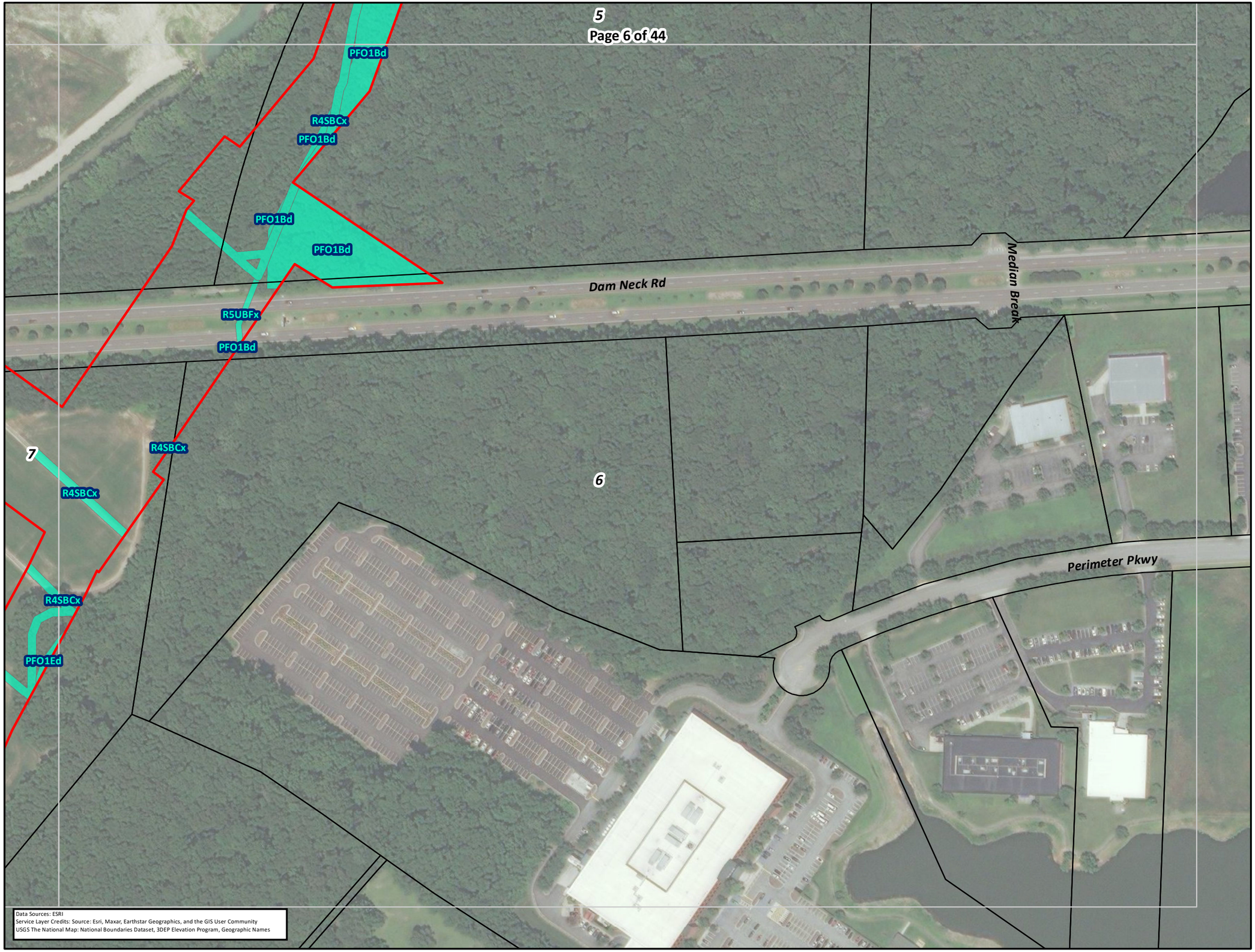
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

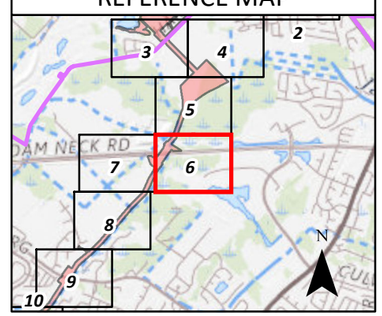
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

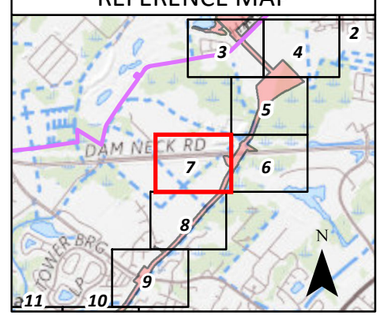
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

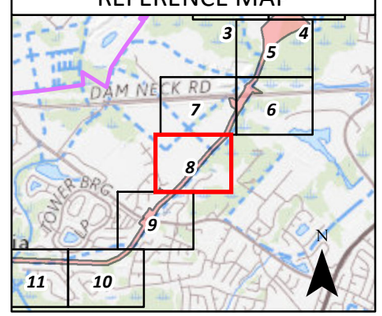
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Tt

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

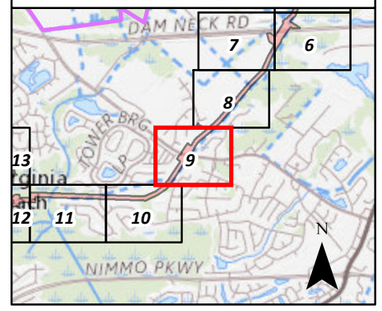
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

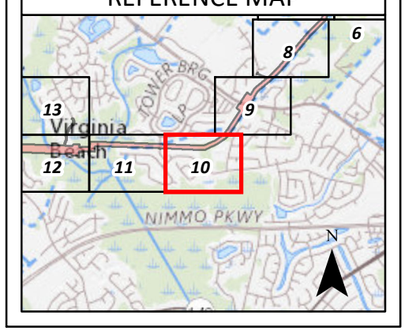
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

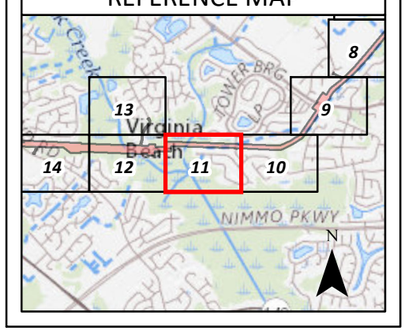
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

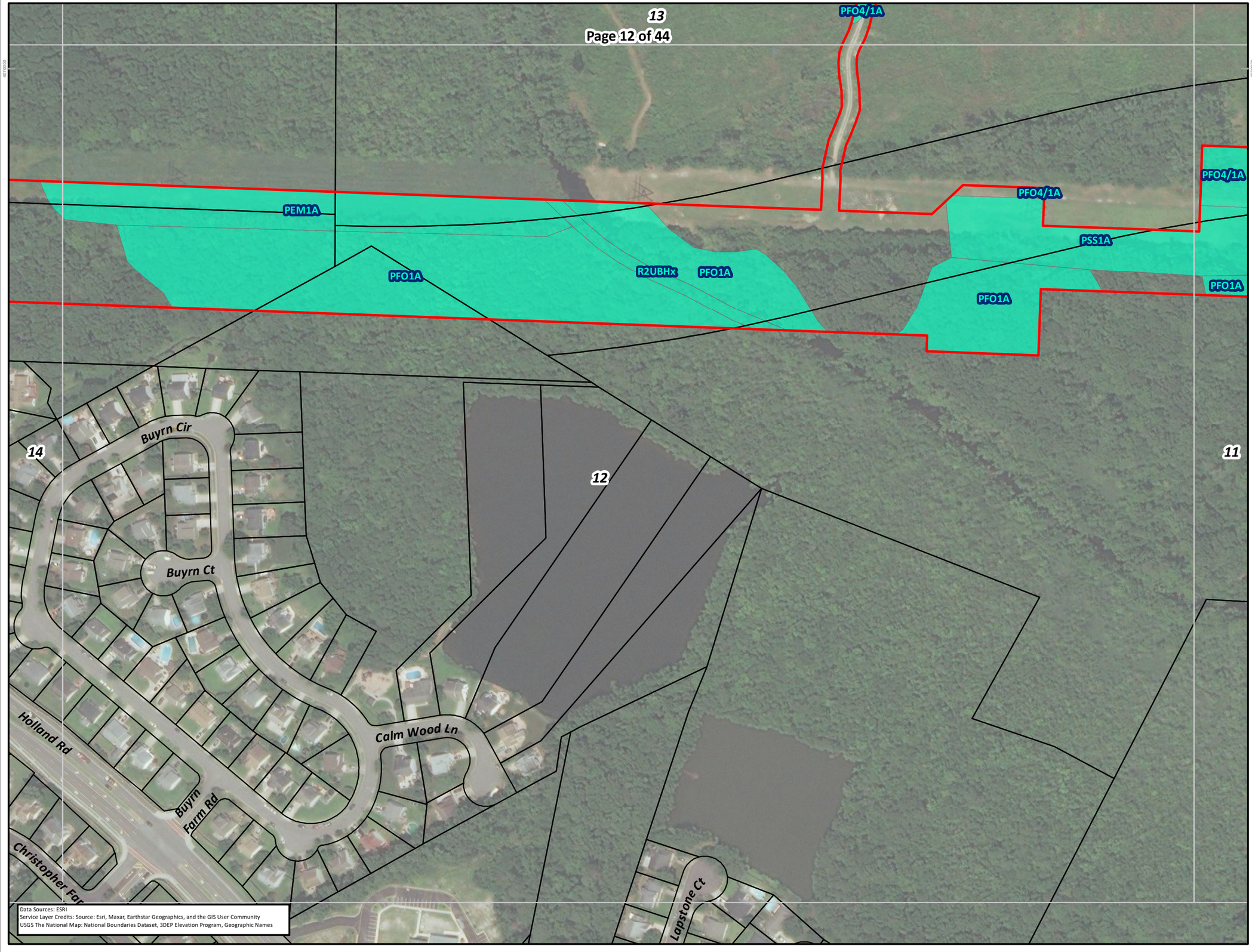
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

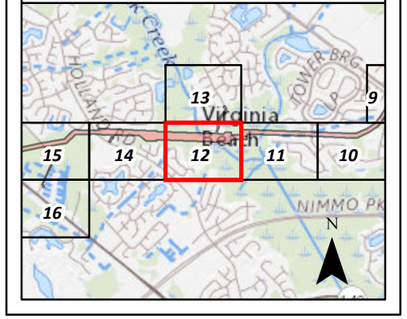
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

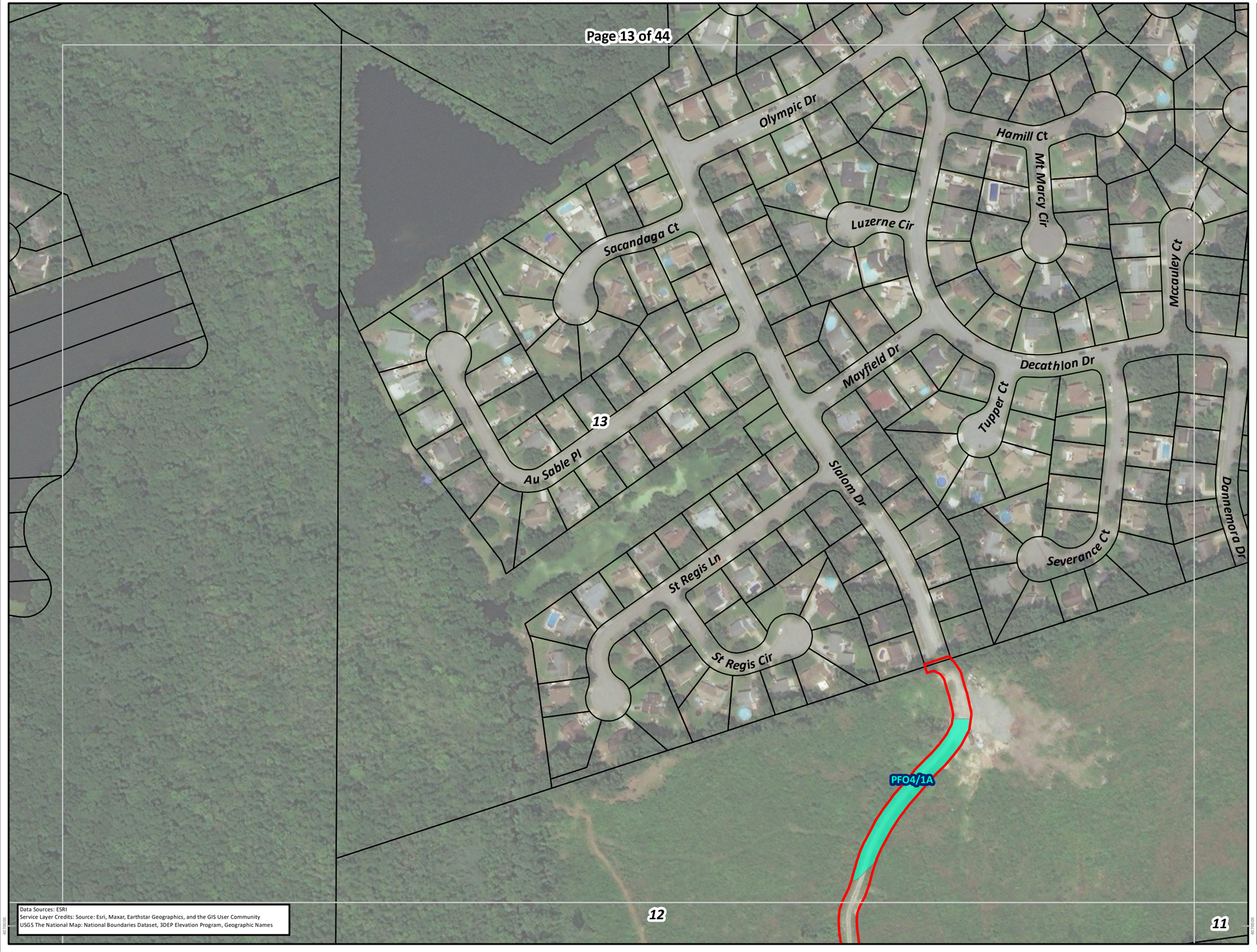
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_NWI_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

4070000

4070000

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

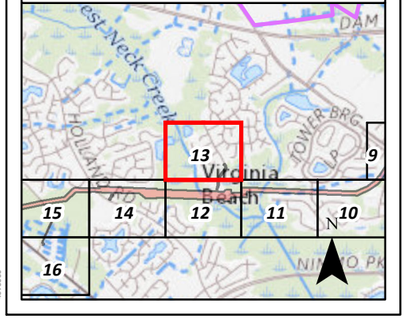
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

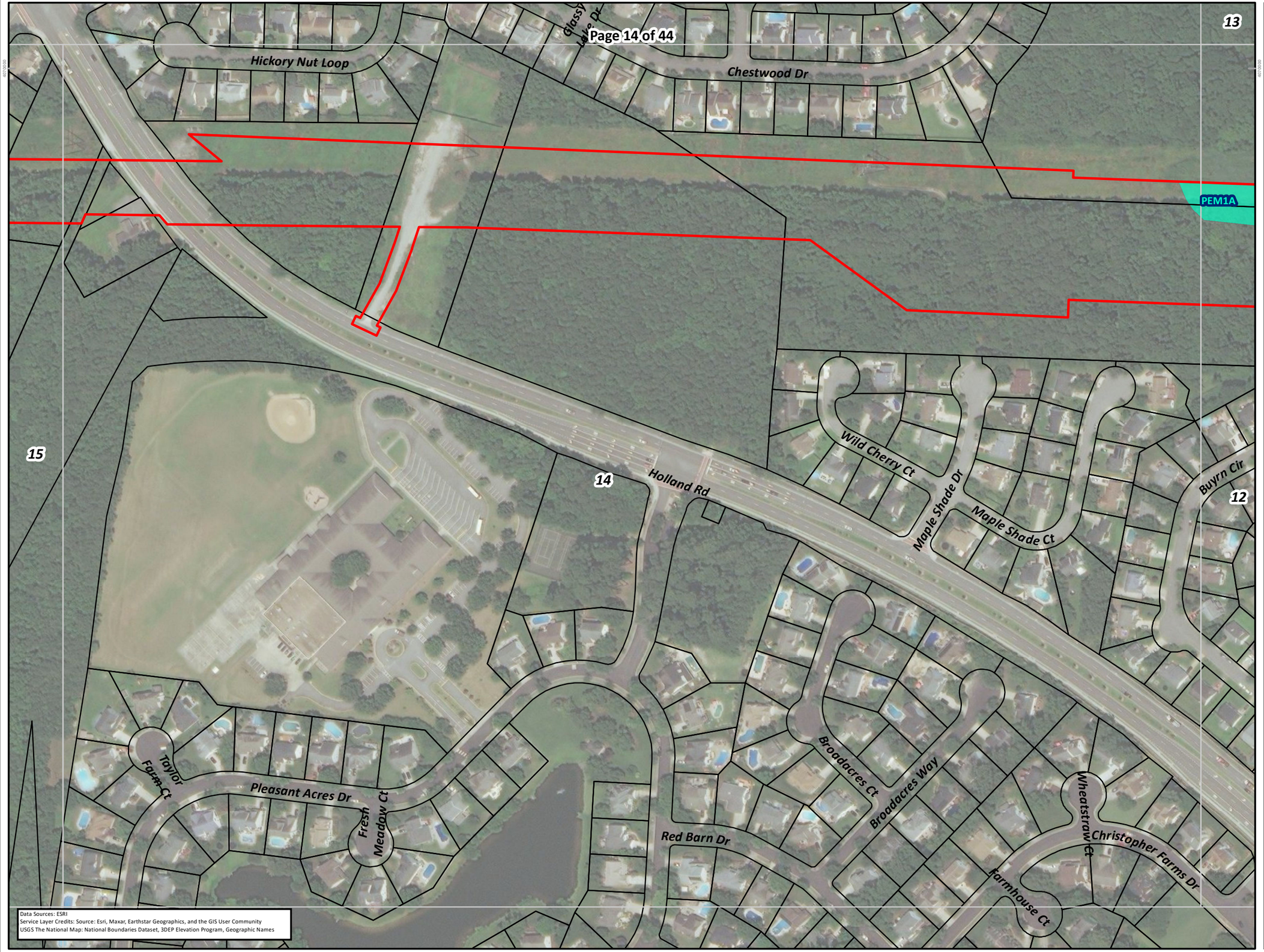
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

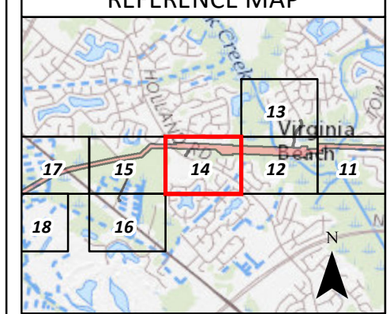
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

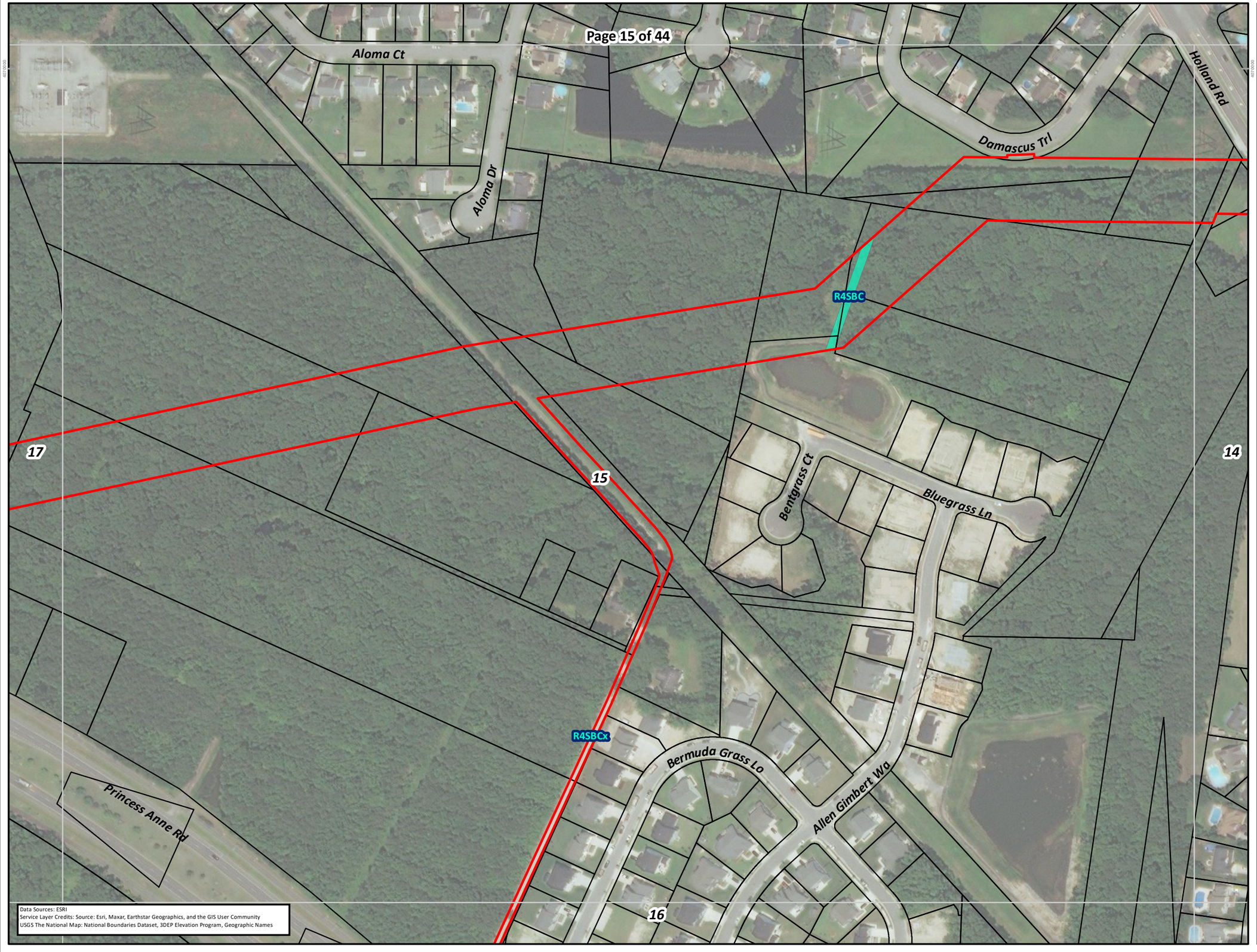
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

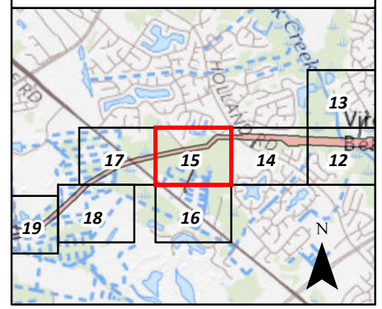
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

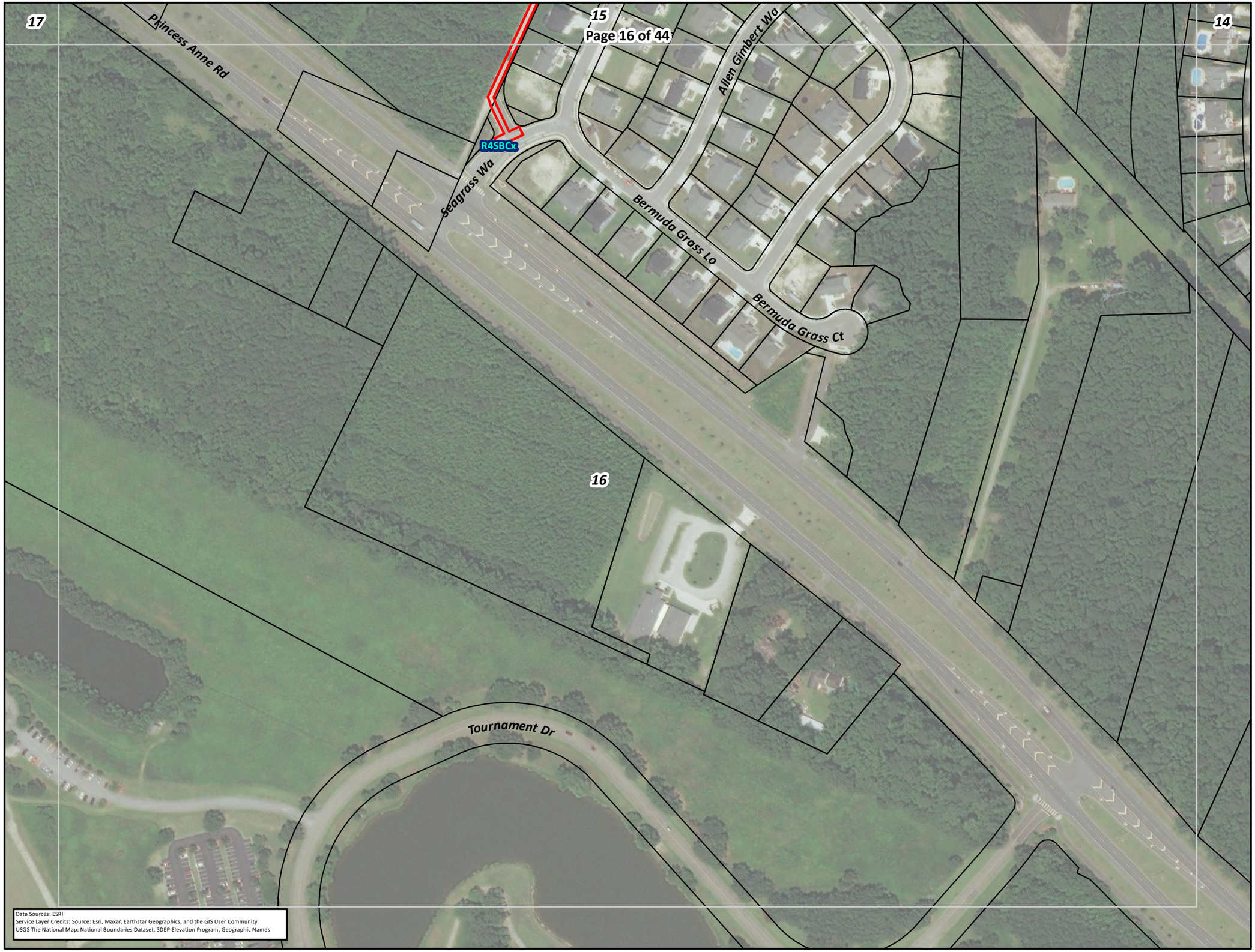
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

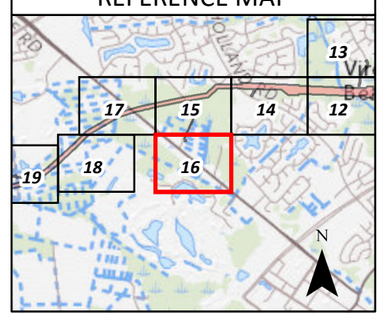
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

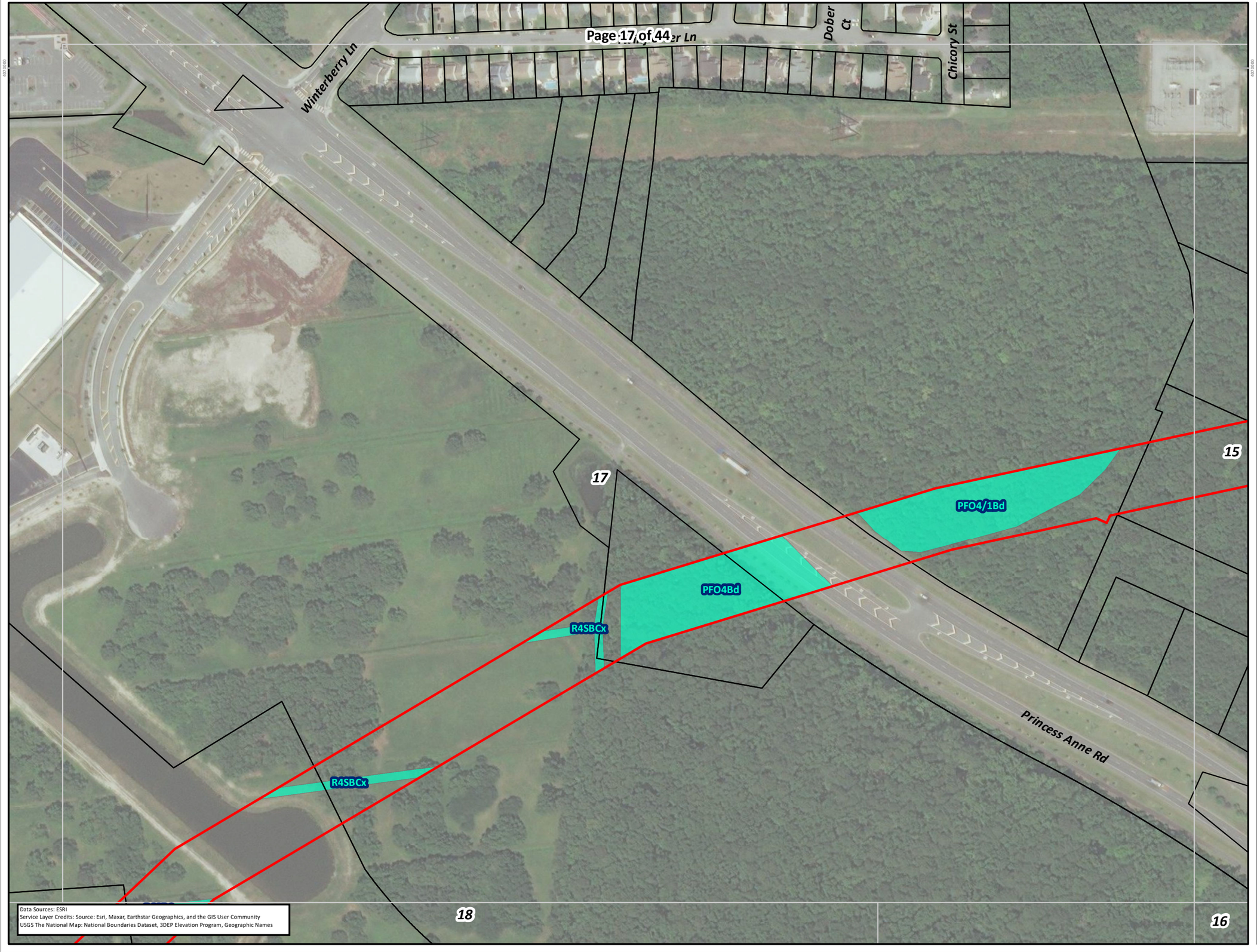
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

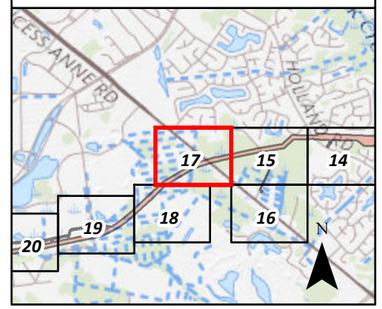
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

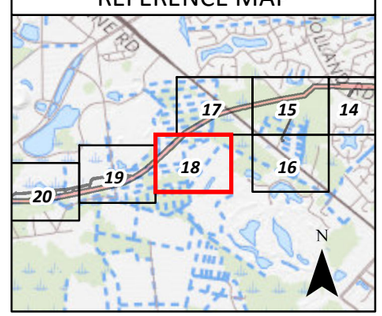
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

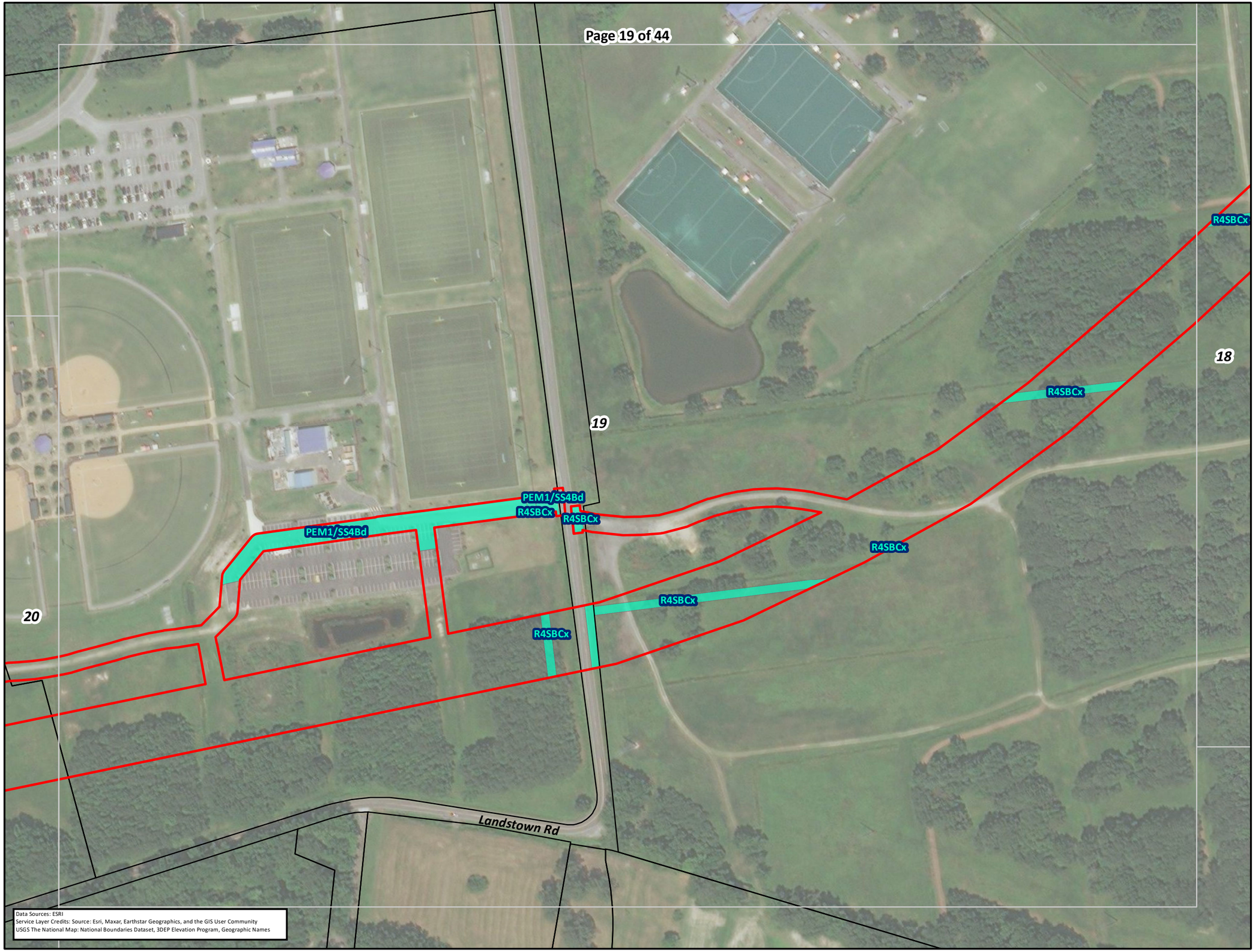
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

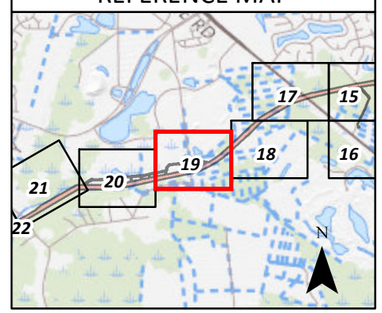
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

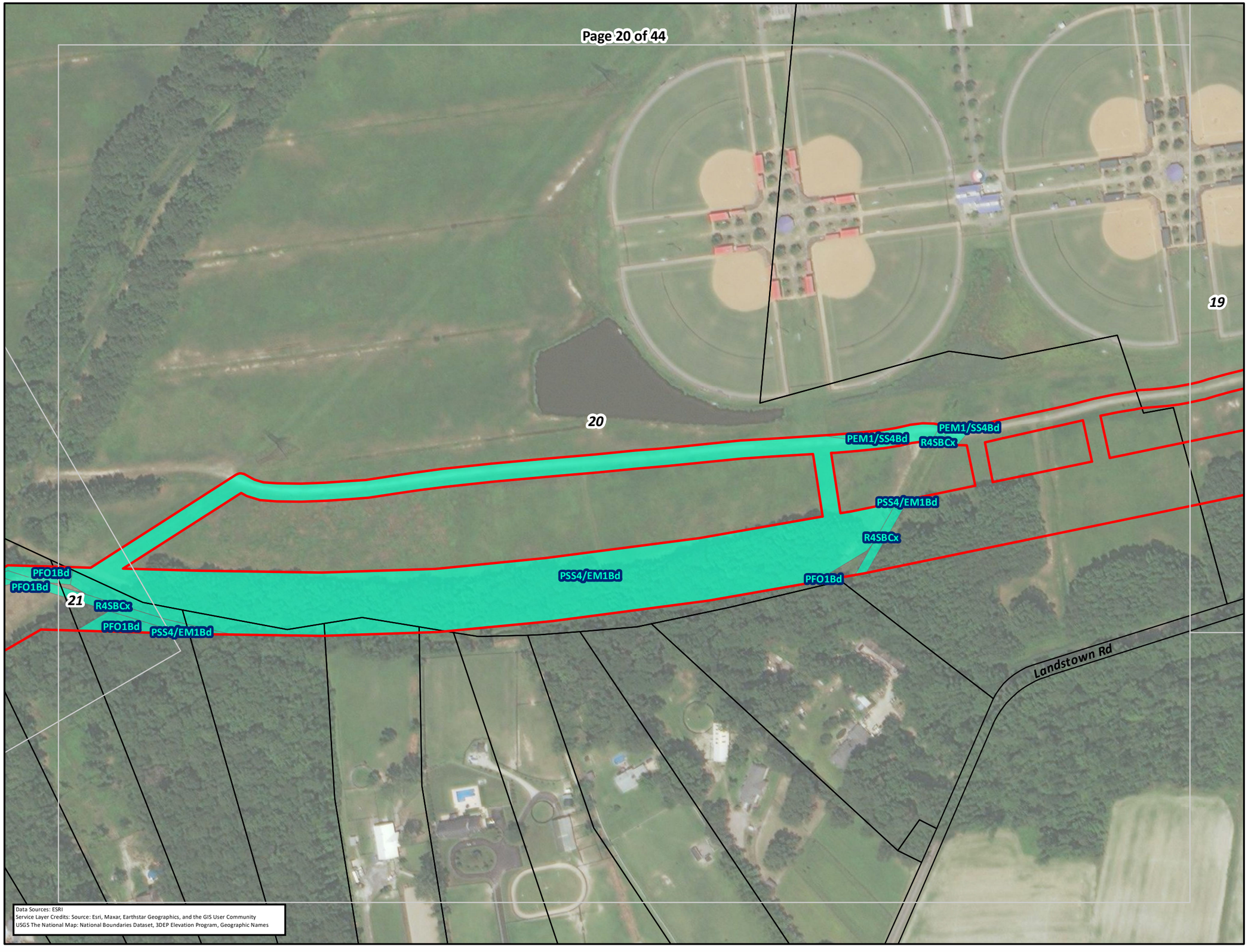
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

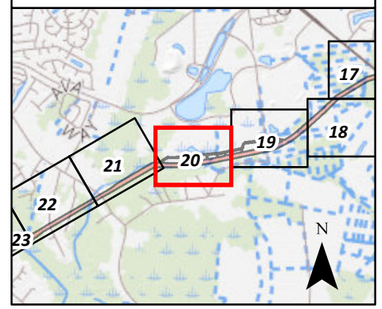
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

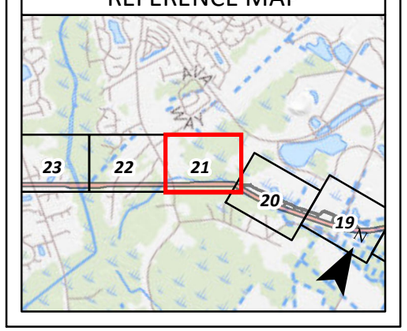
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

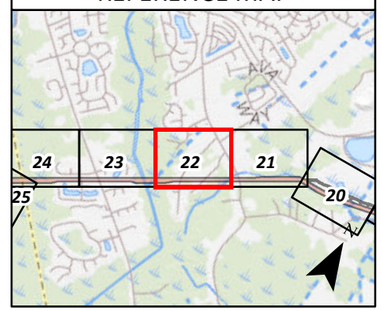
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Tt

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

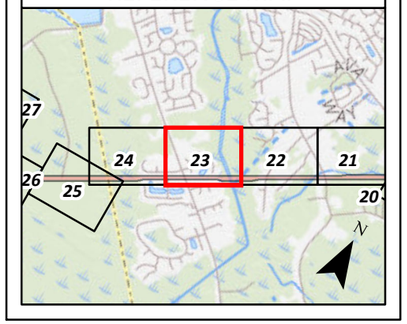
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

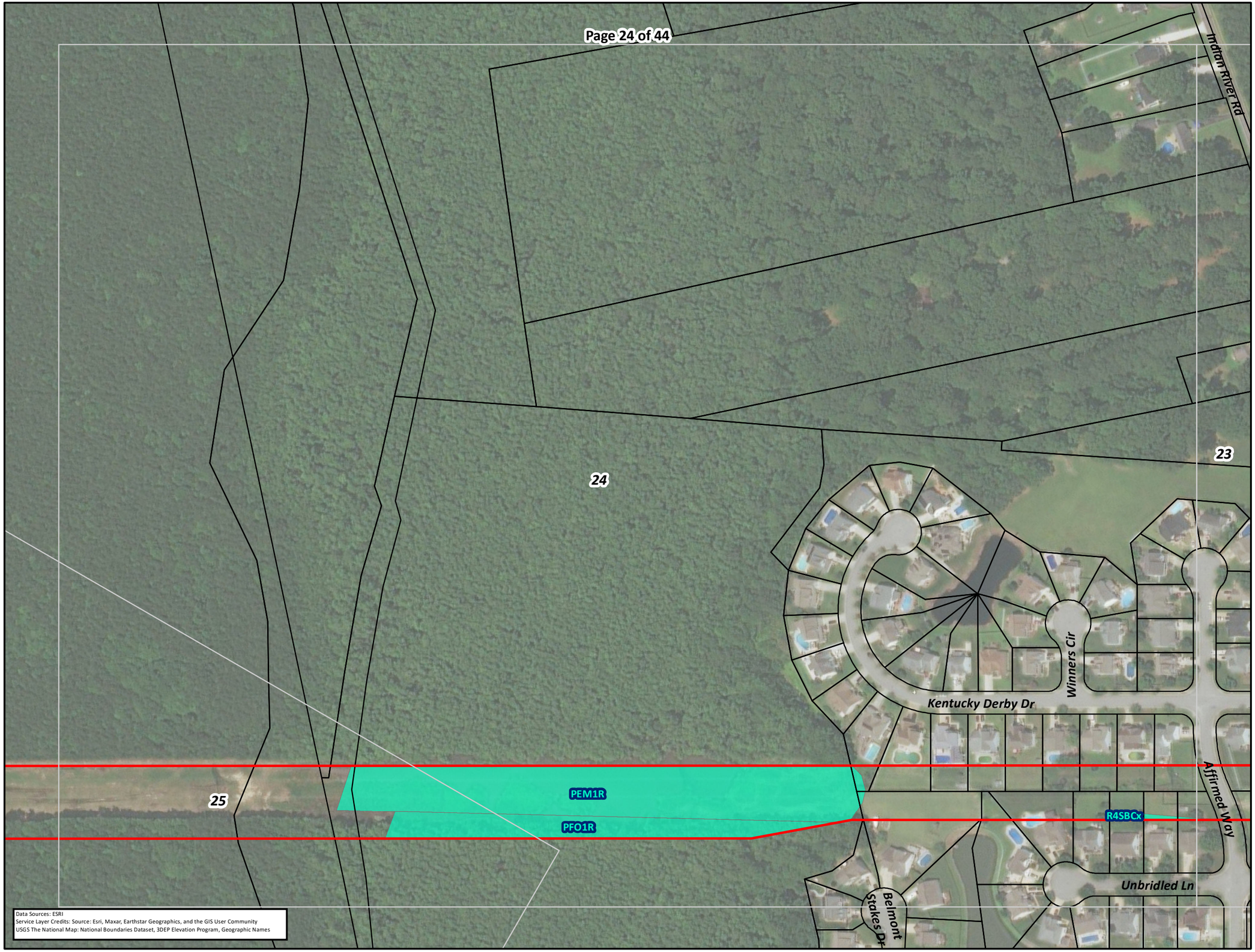
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

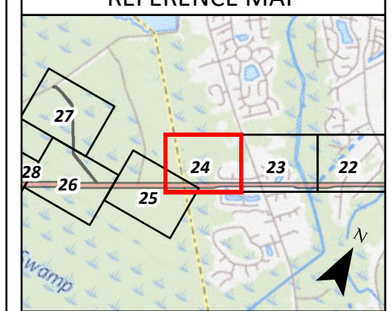
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

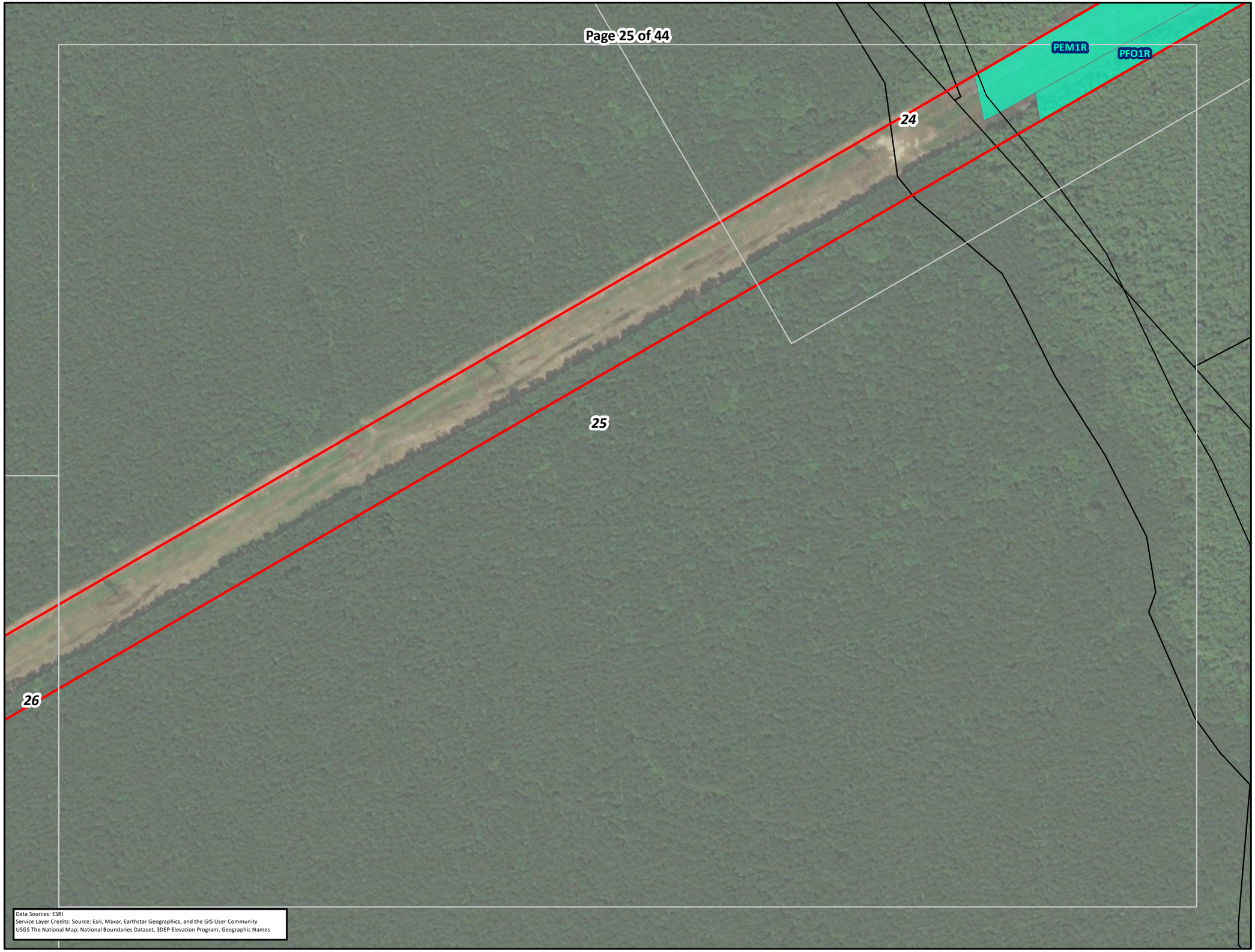
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

NOT FOR CONSTRUCTION

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

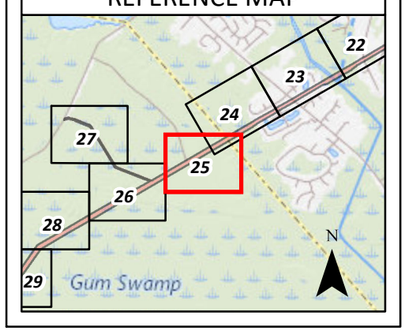
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

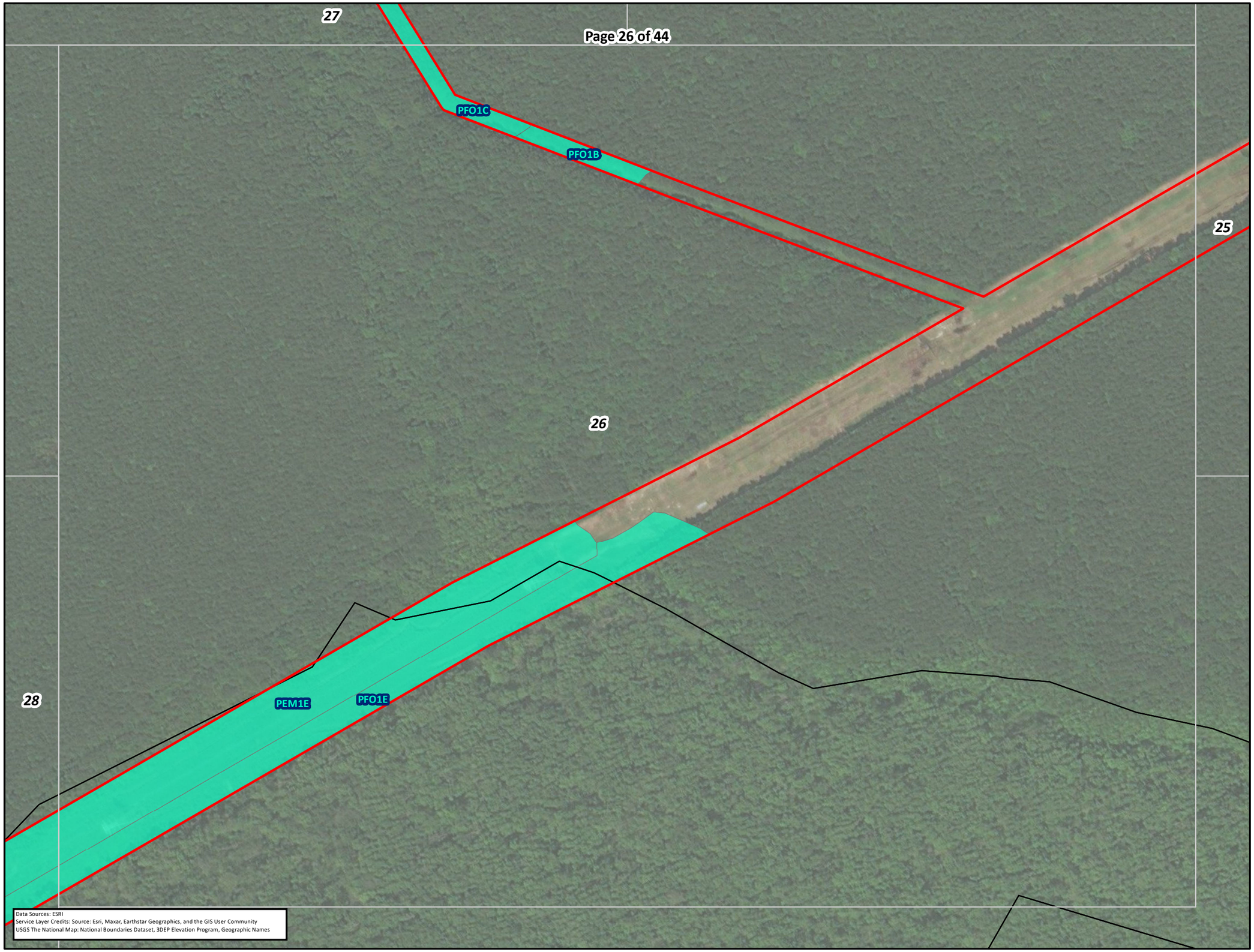
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

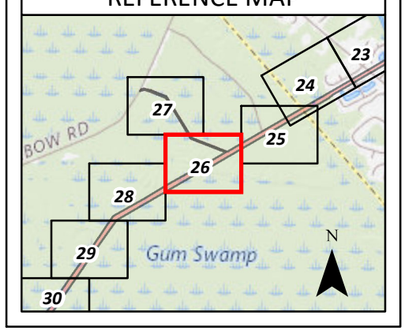
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

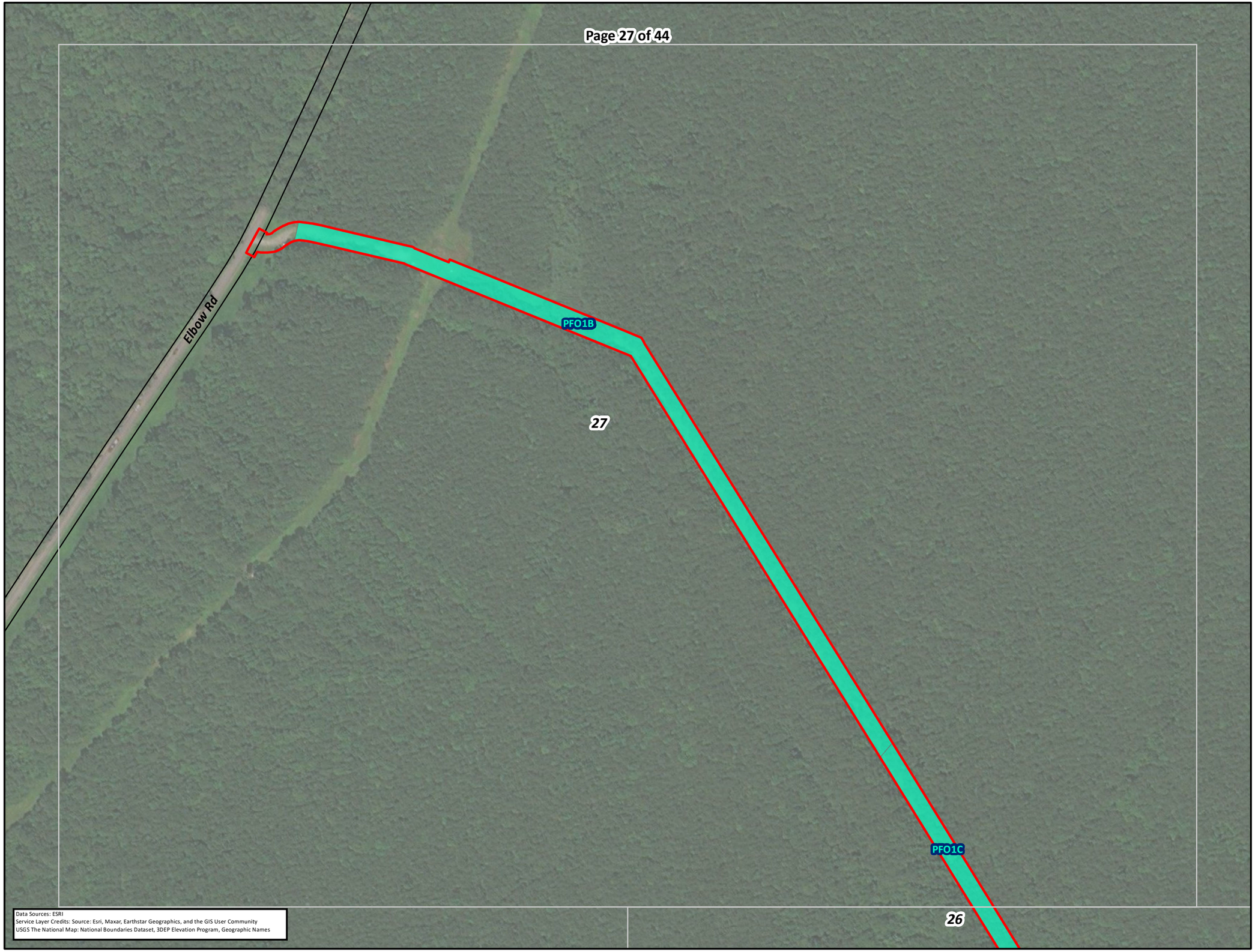
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

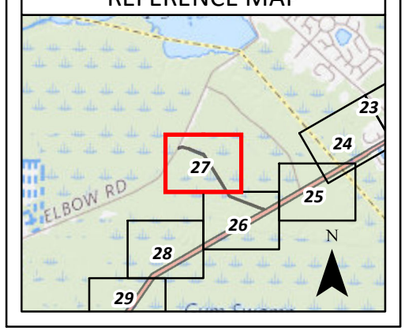
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

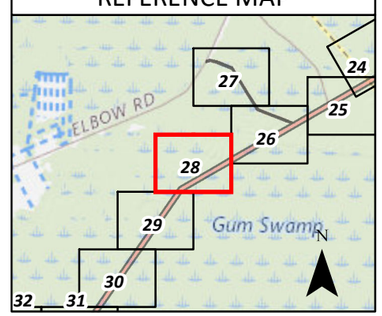
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

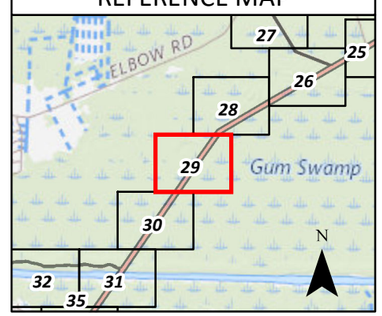
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

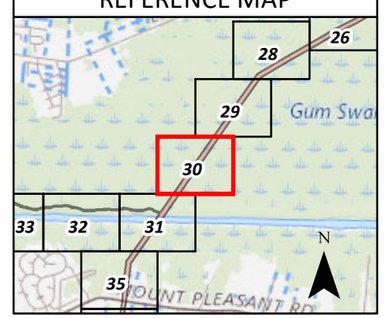
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

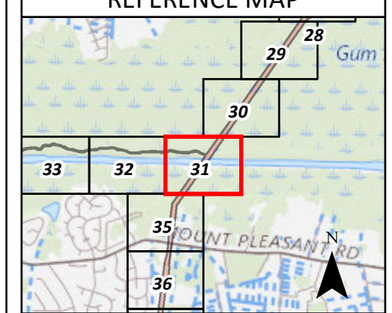
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

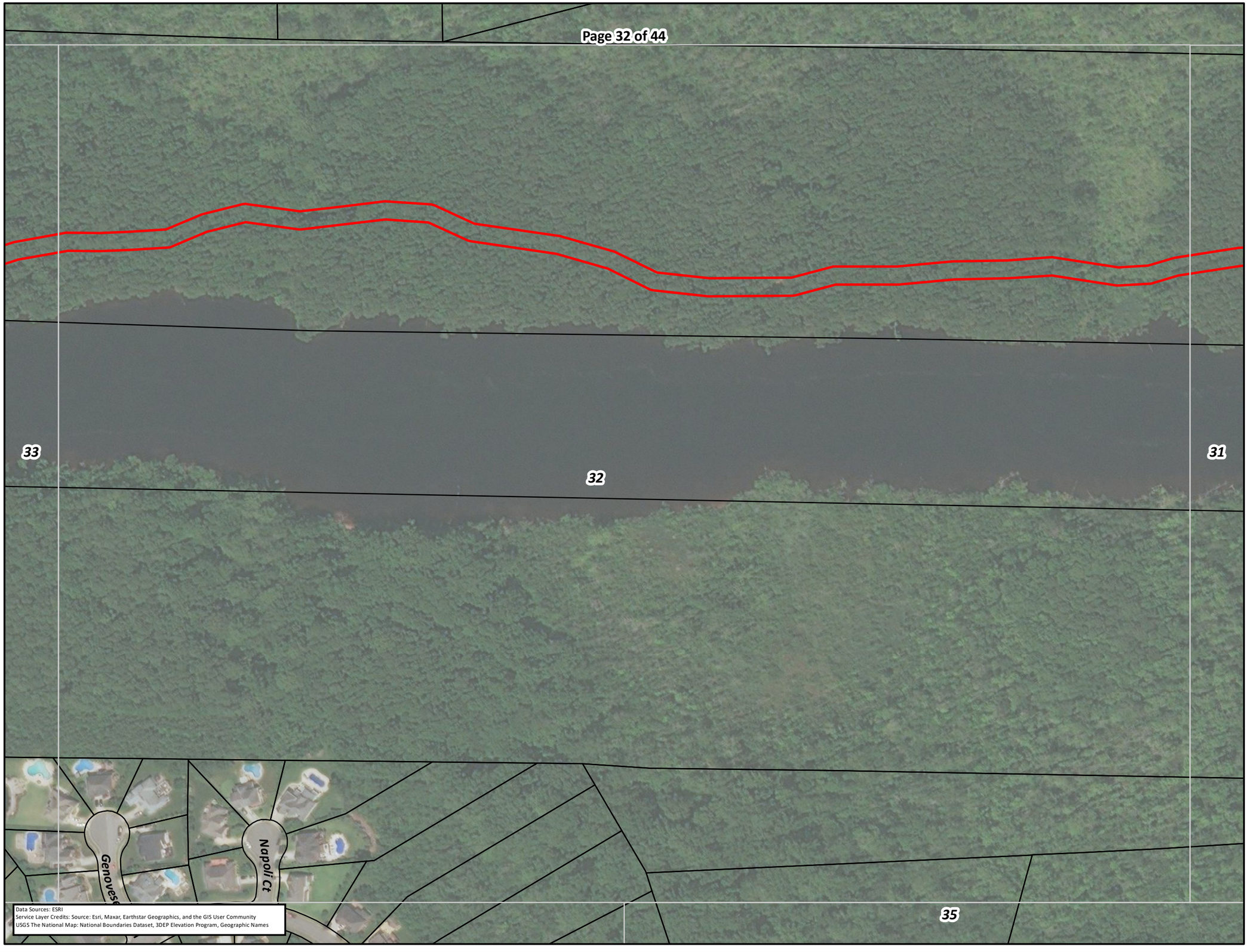
Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

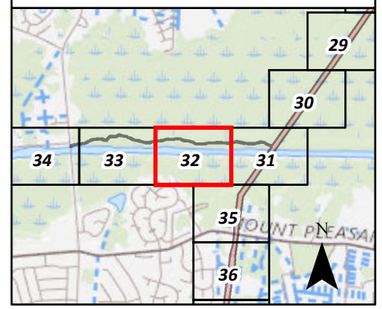
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

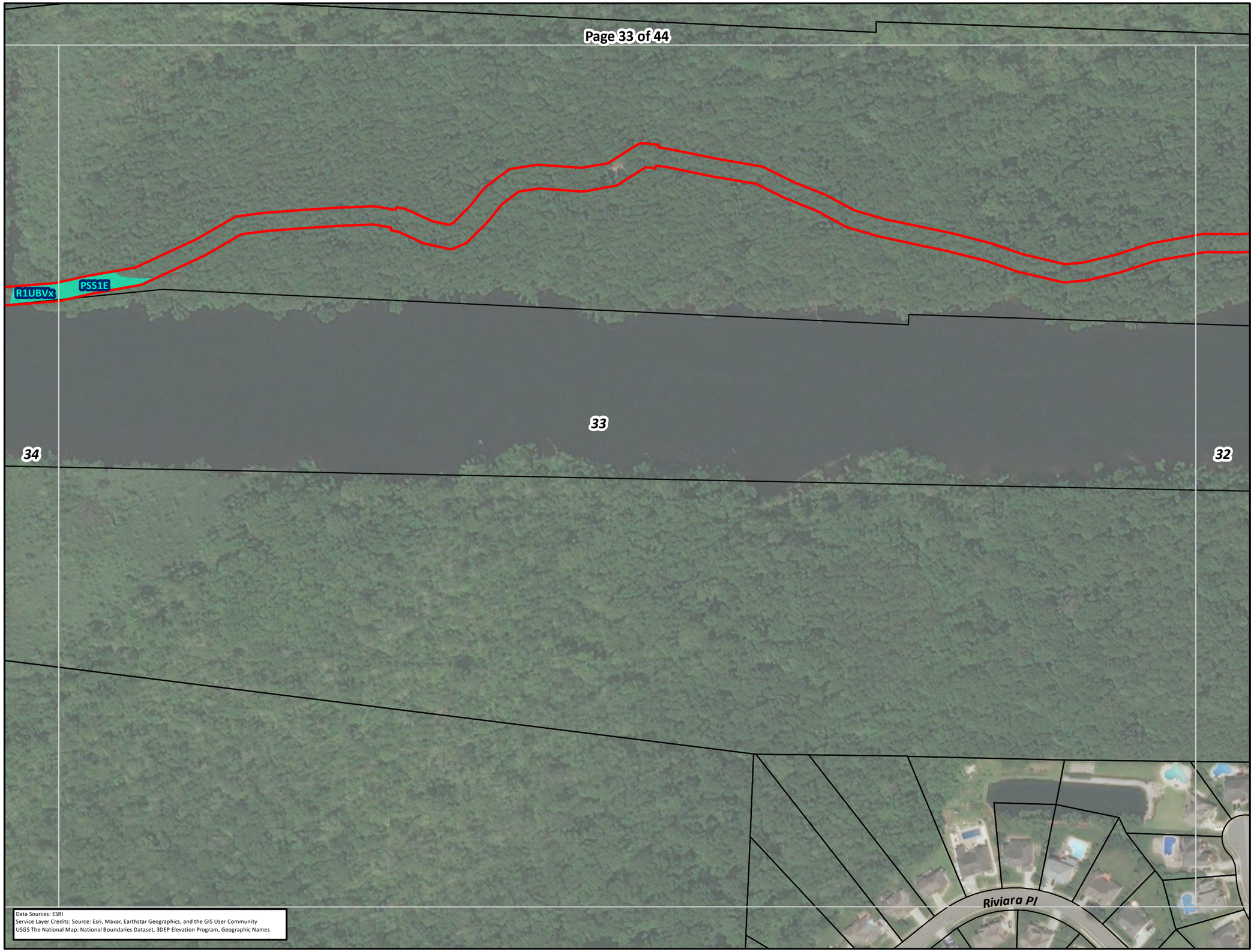
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Tt

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

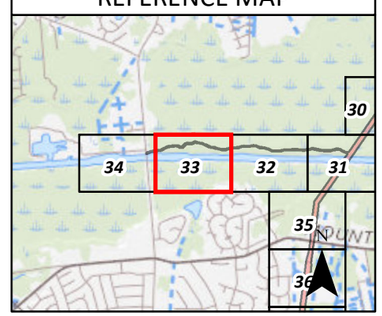
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

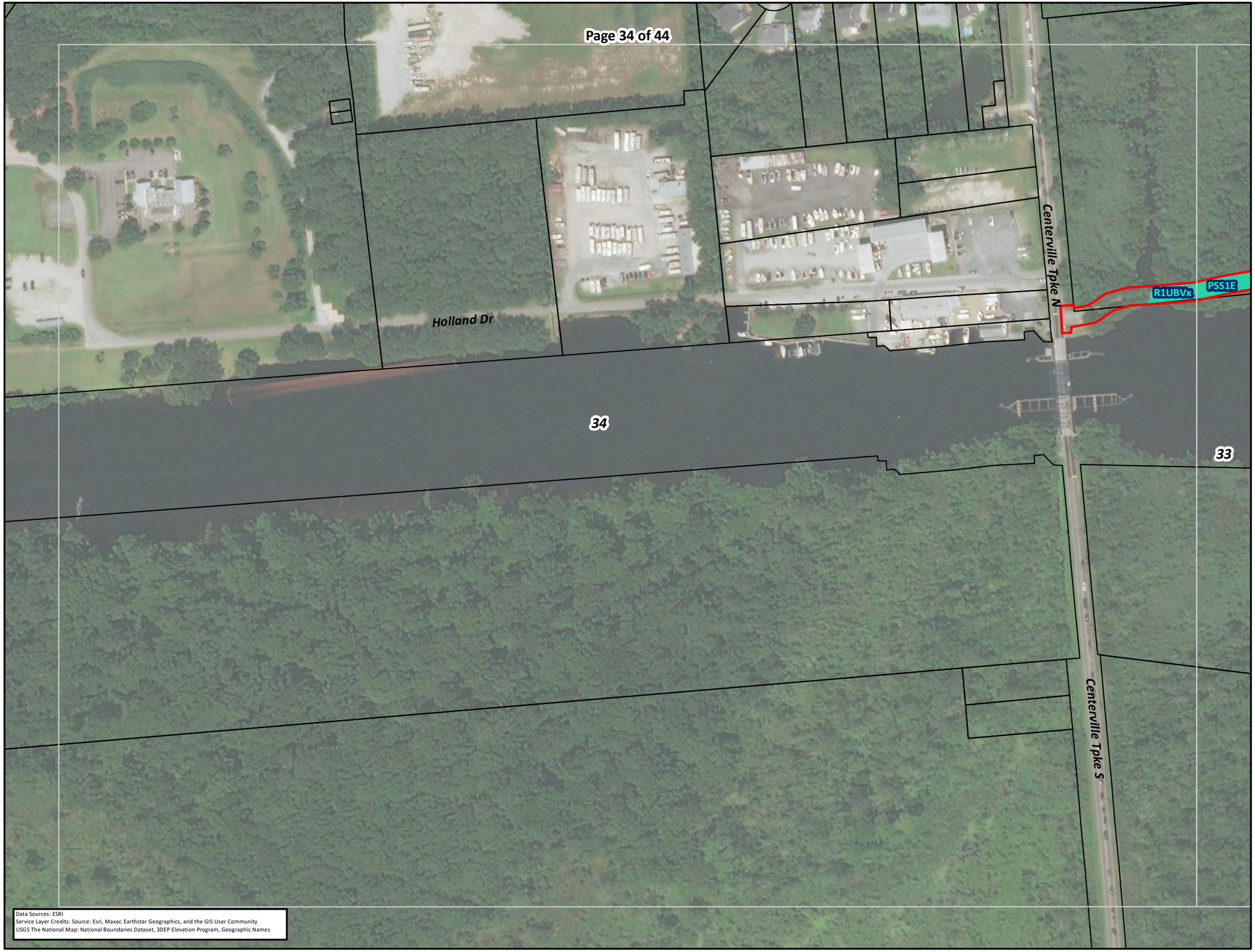
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

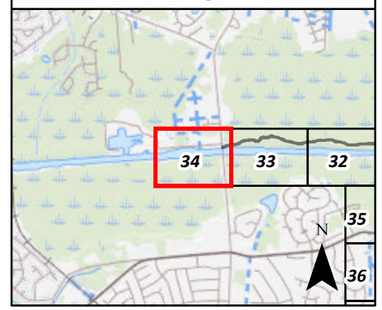
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

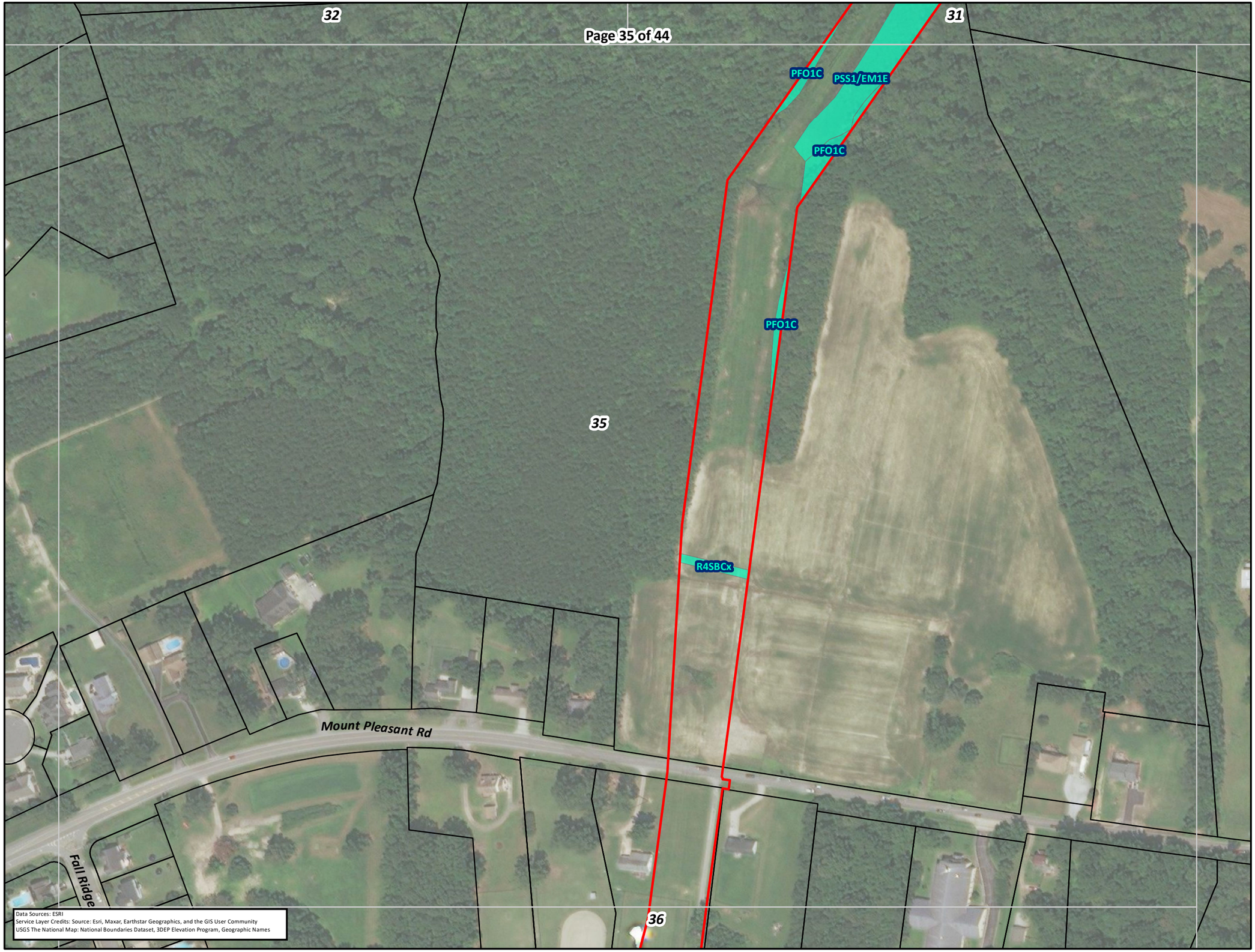
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

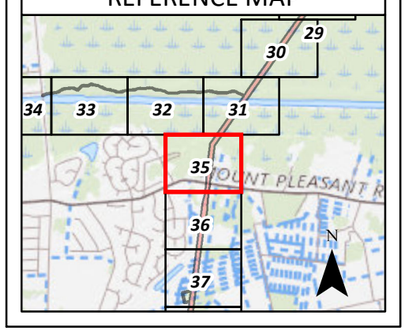
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

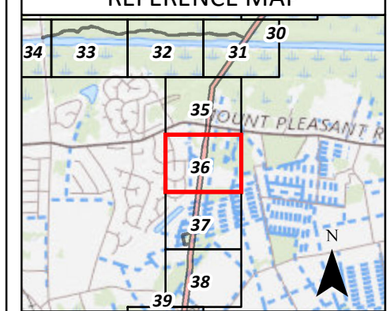
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

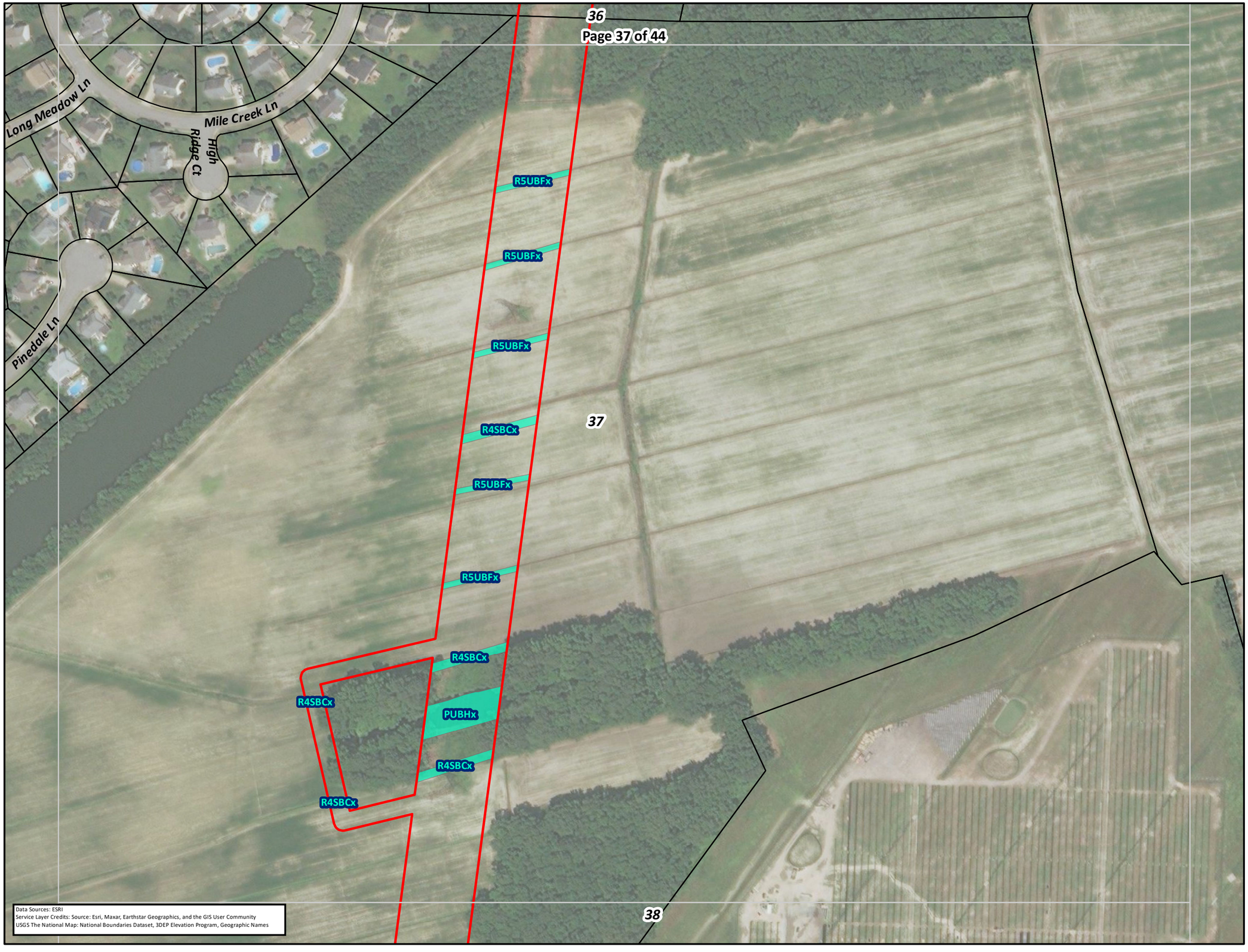
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

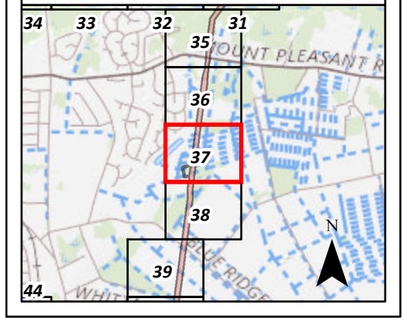
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

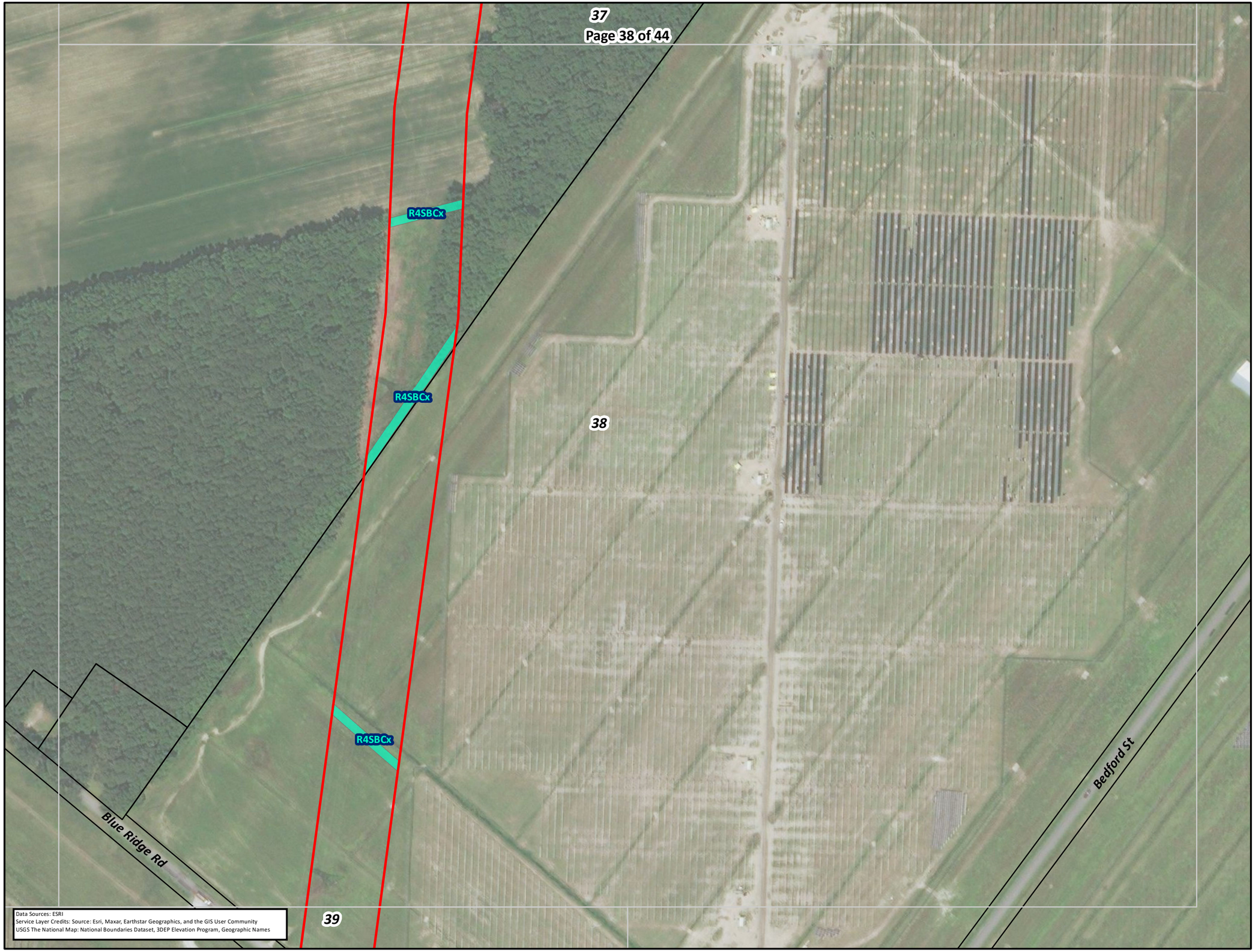
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PJD\PJD_NWI_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

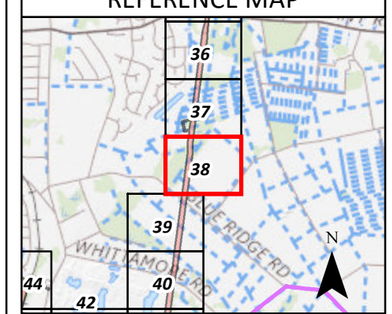
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

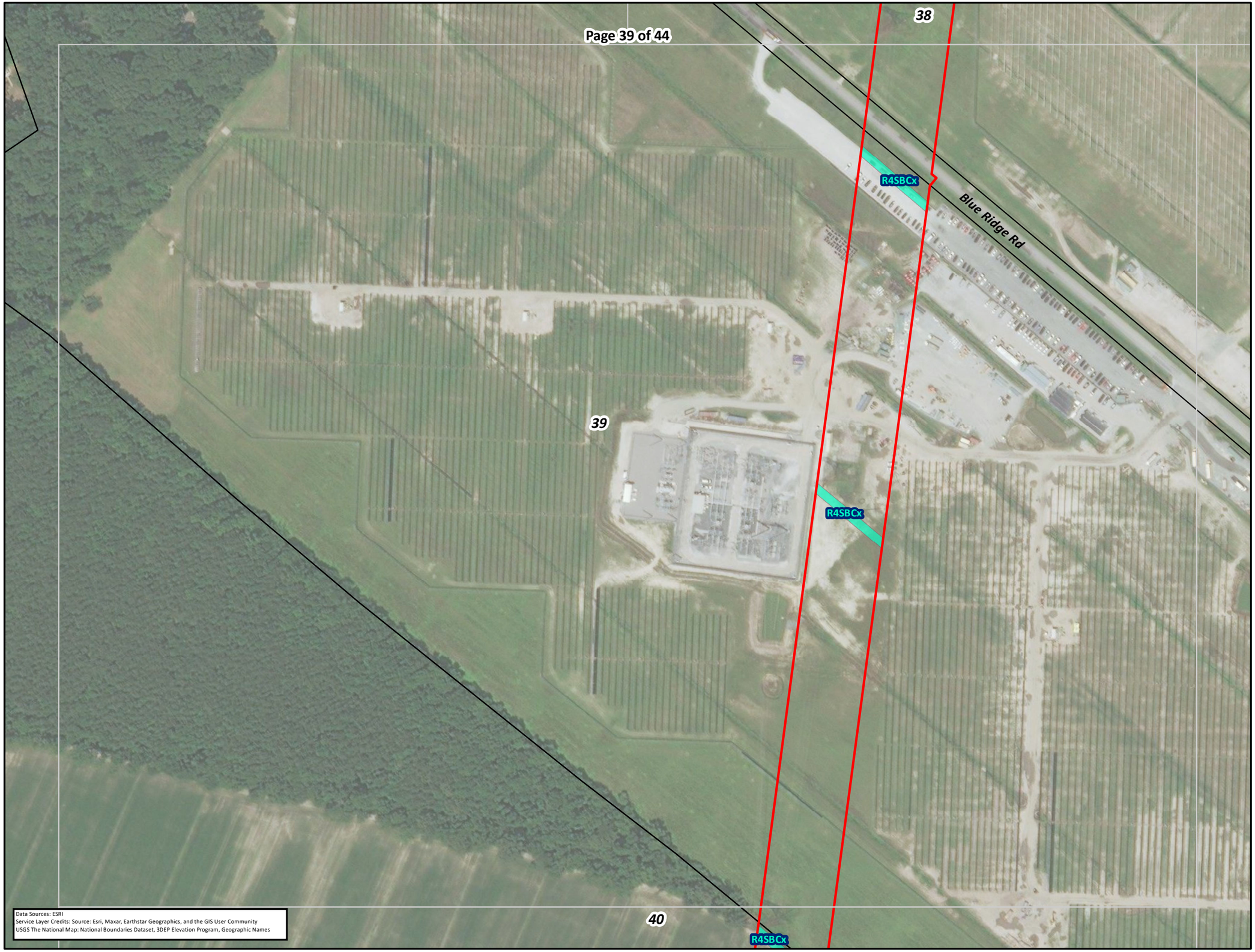
0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

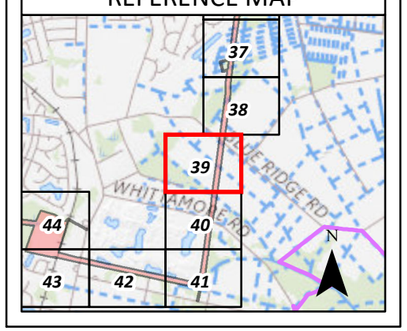
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

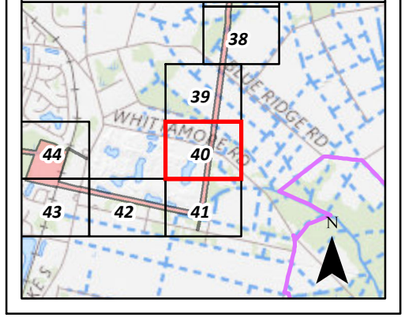
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP





Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

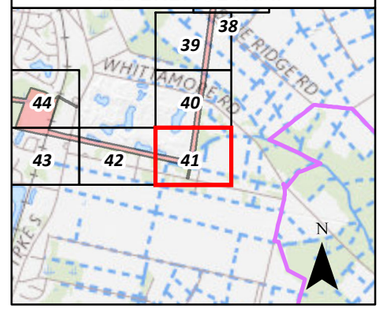
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION



Data Sources: ESRI
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

- Parcel Line
- NWI Wetland
- Mapbook Page
- Project LOD
- US Navy
- SMR

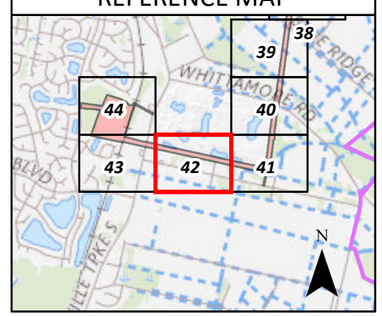
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy®

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

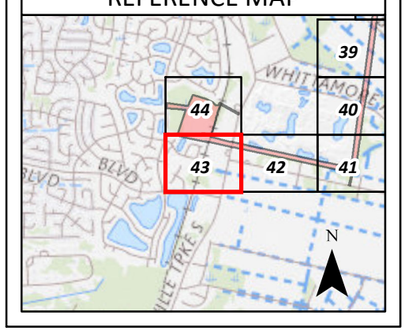
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

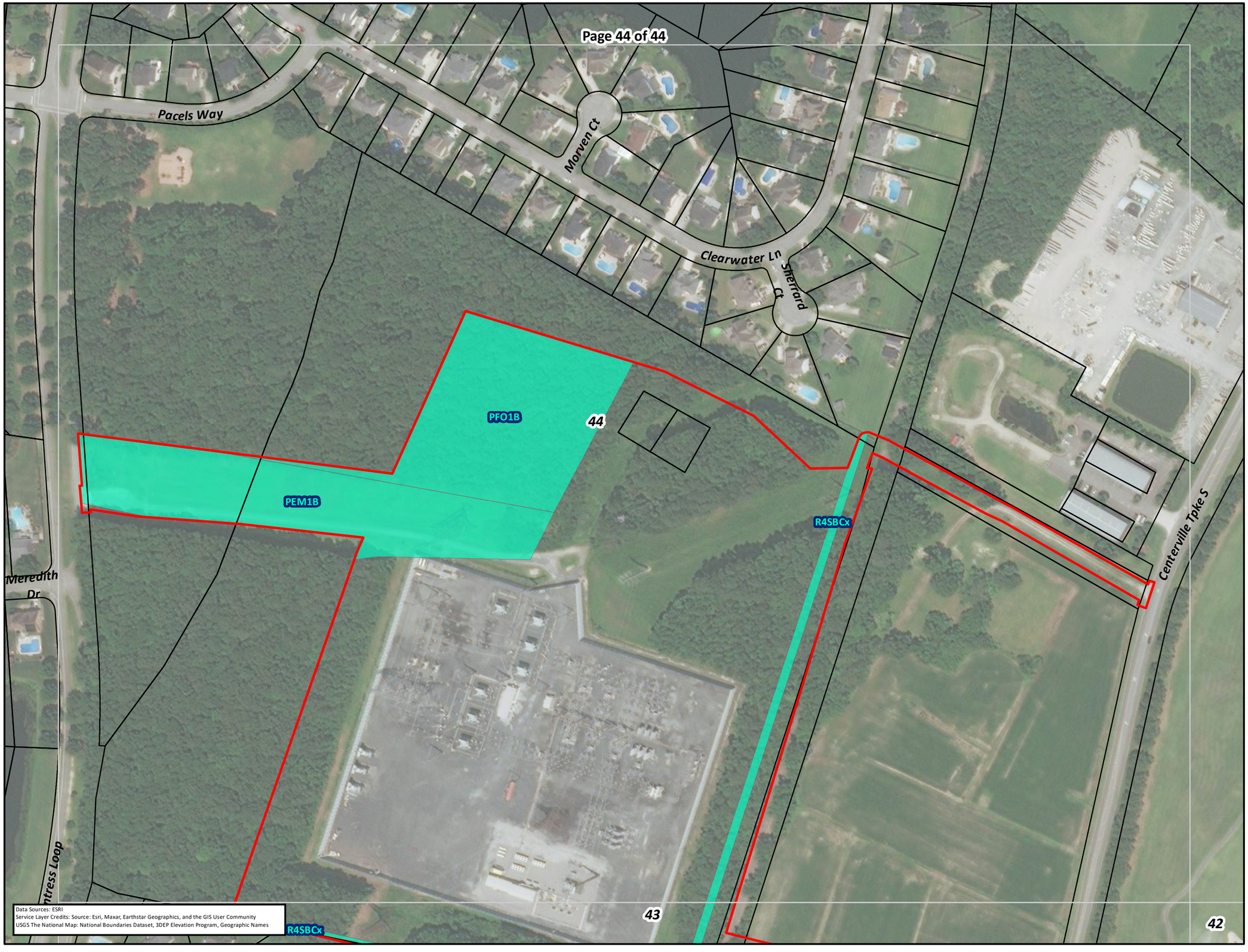
0 25 50 75 100 Meters

REFERENCE MAP



NOT FOR CONSTRUCTION

Path: P:\GIS\Dominion_OSW\GIS\Spatial\MXD\PID\PID_NWI_H2F_Mapbook_Aerial.mxd



COASTAL VIRGINIA OFFSHORE WIND COMMERCIAL PROJECT: HARPERS TO FENTRESS PJD

Dominion Energy

Parcel Line
NWI Wetland
Mapbook Page
Project LOD
US Navy
SMR

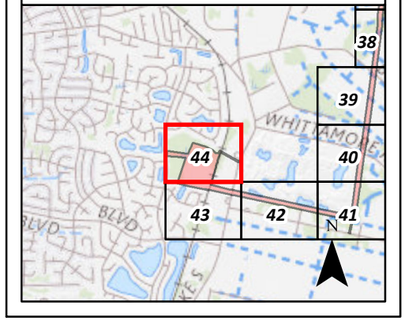
Information shown on this map is compiled from numerous sources, may not be complete or accurate, and is intended only for planning purposes and not for construction.

Date	7/7/2022
Projection	NAD 1983 2011 UTM Zone 18N
Personnel	Figure Prepared by: Tetra Tech Offshore GIS Group

0 100 200 300 400 Feet

0 25 50 75 100 Meters

REFERENCE MAP



APPENDIX D: DATA SHEETS AND PHOTOLOG

Appendix D-1: Stream Data Sheets and Photolog

Appendix D-2: Wetland Data Sheets and Photolog

APPENDIX D-1: STREAM DATASHEETS AND PHOTOLOG

ED_S_01

NC DWQ Stream Identification Form Version 4.11

Date: 3/30/2022	**Project/Site:** CVOW	**Latitude:** 36.69
Evaluator: E. Deck, E. Foster, T. Conrad	**County:** Chesapeake	**Longitude:** -76.19
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 19.5	**Stream Determination (circle one)** Ephemeral **Intermittent** Perennial	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 5)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	[0]	1	2	3
2. Sinuosity of channel along thalweg	0	1	[2]	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	[0]	1	2	3
6. Depositional bars or benches	0	[1]	2	3
7. Recent alluvial deposits	[0]	1	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	[0]	0.5	1	1.5
11. Second or greater order channel	[No = 0]		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)				
12. Presence of Baseflow	0	1	[2]	3
13. Iron oxidizing bacteria	0	[1]	2	3
14. Leaf litter	1.5	1	[0.5]	0
15. Sediment on plants or debris	[0]	0.5	1	1.5
16. Organic debris lines or piles	0	[0.5]	1	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 7.5)				
18. Fibrous roots in streambed	3	2	[1]	0
19. Rooted upland plants in streambed	3	[2]	1	0
20. Macrobenthos (note diversity and abundance)	0	[1]	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	[0]	0.5	1	1.5
23. Crayfish	0	[0.5]	1	1.5
24. Amphibians	0	[0.5]	1	1.5
25. Algae	0	0.5	[1]	1.5
26. Wetland plants in streambed	FACW = 0.75; [OBL = 1.5] Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID ED_S01	**STREAM NAME** Unnamed
CLIENT Dominion	**PROJECT NAME** CVOW
LAT 36.69 **LONG** -76.19	**STATE** Virginia **COUNTY** City of Chesapeake
INVESTIGATORS EF	**DATE** 03/30/2022
WATER TYPE TNW ☐ RPW ☒ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 7.0 ft
Top of Bank Height:
LB 5.0 ft RB 5.0 ft
Water Depth: 2.60 in
Water Width: 4.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 4.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes X No
Culvert Material: _____
Culvert Size: _____ in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
X Clear ___ Slightly turbid ___ Turbid
___ Other _____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		0
Boulder	> 256 mm (10")	0
Cobble	64-256 mm (2.5"-10")	0
Gravel	2-64 mm (0.1"-2.5")	0
Sand	0.06-2mm (gritty)	20
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	45

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	20
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
✓ Agricultural ___ Residential
___ ROW ___ Other:

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
X Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Feature ID: ED-S-01 Date: 03/30/2022



Photograph Number 1

Photograph Direction North

Comments: Facing upstream



Photograph Number 2

Photograph Direction South

Comments: Facing downstream

Photograph Number 3

Photograph Direction _____

Comments:

Photograph Number 4

Photograph Direction _____

Comments:

ED_S_02 **UNT**

NC DWQ Stream Identification Form Version 4.11

Date: 3/30/2022	**Project/Site:** CVOW	**Latitude:** 36.686496
Evaluator: E. Deck, E. Foster, T. Conrad	**County:** Chesapeake	**Longitude:** -76.173409
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 30.5	**Stream Determination (circle one)** Ephemeral Intermittent **Perennial**	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 8)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	**0**	1	2	3
2. Sinuosity of channel along thalweg	0	**1**	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	**1**	2	3
4. Particle size of stream substrate	0	**1**	2	3
5. Active/relict floodplain	**0**	1	2	3
6. Depositional bars or benches	0	1	**2**	3
7. Recent alluvial deposits	**0**	1	2	3
8. Headcuts	**0**	1	2	3
9. Grade control	**0**	0.5	1	1.5
10. Natural valley	**0**	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 11)				
12. Presence of Baseflow	0	1	2	**3**
13. Iron oxidizing bacteria	0	1	2	**3**
14. Leaf litter	1.5	**1**	0.5	0
15. Sediment on plants or debris	0	**0.5**	1	1.5
16. Organic debris lines or piles	0	**0.5**	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 11.5)				
18. Fibrous roots in streambed	3	**2**	1	0
19. Rooted upland plants in streambed	**3**	2	1	0
20. Macrobenthos (note diversity and abundance)	0	**1**	2	3
21. Aquatic Mollusks	**0**	1	2	3
22. Fish	0	0.5	**1**	1.5
23. Crayfish	0	**0.5**	1	1.5
24. Amphibians	0	0.5	1	**1.5**
25. Algae	0	0.5	**1**	1.5
26. Wetland plants in streambed	FACW = 0.75; **OBL = 1.5** Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID ED_S_02	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.686496 **LONG** -76.173409	**STATE** Virginia	**COUNTY** Chesapeake	
INVESTIGATORS ED, EF, TC		**DATE** 03/30/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☑ Intermittent ☐ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 25.0 ft
Top of Bank Height:
LB 6.0 ft RB 6.0 ft
Water Depth: 10.00 in
Water Width: 13.0 ft
Ordinary High Water Mark (Width): 13.0 ft
Ordinary High Water Mark (Height): 10.0 in
Flow Direction: Northeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✓ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
✓ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	15
Silt	0.004-0.06 mm	55
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	20
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
✓ ROW ___ Other:

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
___ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Stream ID ED_S_02 Date 03/30/2022



Photograph Number 1

Photograph Direction NE

Comments: Downstream



Photograph Number 2

Photograph Direction SW

Comments: Upstream

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

ED_S_003 **– UNT**

NC DWQ Stream Identification Form Version 4.11

Date: 3/30/2022	**Project/Site:** CVOW	**Latitude:** 36.688853
Evaluator: E. Deck, E. Foster, T. Conrad	**County:** Chesapeake	**Longitude:** -76.1718865
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20	**Stream Determination (circle one)** Ephemeral [Intermittent] Perennial	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	[0]	1	2	3
2. Sinuosity of channel along thalweg	0	1	[2]	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	[0]	1	2	3
6. Depositional bars or benches	0	[1]	2	3
7. Recent alluvial deposits	[0]	1	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	[0]	0.5	1	1.5
11. Second or greater order channel	[No = 0]		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)				
12. Presence of Baseflow	0	1	[2]	3
13. Iron oxidizing bacteria	0	[1]	2	3
14. Leaf litter	1.5	1	[0.5]	0
15. Sediment on plants or debris	[0]	0.5	1	1.5
16. Organic debris lines or piles	0	[0.5]	1	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 8)				
18. Fibrous roots in streambed	3	2	[1]	0
19. Rooted upland plants in streambed	3	[2]	1	0
20. Macrobenthos (note diversity and abundance)	0	[1]	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	0	[0.5]	1	1.5
23. Crayfish	0	[0.5]	1	1.5
24. Amphibians	0	[0.5]	1	1.5
25. Algae	0	0.5	[1]	1.5
26. Wetland plants in streambed	FACW = 0.75; [OBL = 1.5] Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID ED_S_003	**STREAM NAME** Unnamed
CLIENT Dominion	**PROJECT NAME** CVOW
LAT 36.688853 **LONG** -76.171886	**STATE** Virginia **COUNTY** Chesapeake
INVESTIGATORS EF ED TC	**DATE** 03/30/2022
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 7.0 ft
Top of Bank Height:
LB 5.0 ft RB 5.0 ft
Water Depth: 2.60 in
Water Width: 4.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 4.0 in
Flow Direction: East

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ✓ Yes ___ No
Culvert Material: metal
Culvert Size: 36 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run %
Pool %

Turbidity
✓ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		0
Boulder	> 256 mm (10")	0
Cobble	64-256 mm (2.5"-10")	0
Gravel	2-64 mm (0.1"-2.5")	20
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	15

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	5
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
✓ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Stream ID ED_S_06 Date 03/30/2022



Photograph Number 1

Photograph Direction West

Comments: Upstream



Photograph Number 2

Photograph Direction East

Comments: Downstream

Photograph Number 3

Photograph Direction _____

Comments:

Photograph Number 4

Photograph Direction _____

Comments:

EF_S_1001– UNT

NC DWQ Stream Identification Form Version 4.11

Date: 6/7/2022	**Project/Site:** CVOW	**Latitude:** 36.75286
Evaluator: E. Foster	**County:** Virginia Beach	**Longitude:** -76.119052
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 35.5	**Stream Determination (circle one)** Ephemeral Intermittent **[Perennial]**	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 15)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	[3]
2. Sinuosity of channel along thalweg	0	[1]	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	0	1	[2]	3
6. Depositional bars or benches	0	[1]	2	3
7. Recent alluvial deposits	0	[1]	2	3
8. Headcuts	0	[1]	2	3
9. Grade control	0	[0.5]	1	1.5
10. Natural valley	0	[0.5]	1	1.5
11. Second or greater order channel	No = 0		[Yes = 3]	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9.5)				
12. Presence of Baseflow	0	1	2	[3]
13. Iron oxidizing bacteria	0	[1]	2	3
14. Leaf litter	[1.5]	1	0.5	0
15. Sediment on plants or debris	0	[0.5]	1	1.5
16. Organic debris lines or piles	0	[0.5]	1	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 11)				
18. Fibrous roots in streambed	3	[2]	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	0	[1]	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	0	[0.5]	1	1.5
23. Crayfish	0	0.5	1	[1.5]
24. Amphibians	0	0.5	1	[1.5]
25. Algae	[0]	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; [OBL = 1.5] Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID EF_S_1001	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.752860 **LONG** -76.119052	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS E. Foster, K. Shepherd		**DATE** 06/07/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☑ Intermittent ☐ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 12.0 ft
Top of Bank Height:
LB 7.0 ft RB 7.0 ft
Water Depth: 18.00 in
Water Width: 9.0 ft
Ordinary High Water Mark (Width): 10.0 ft
Ordinary High Water Mark (Height): 23.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✓ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
___ Clear ___ Slightly turbid ✓ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	35
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
✓ ROW ___ Other:

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

Floodplain Width
✓ Wide > 30ft ___ Moderate 15-30ft
___ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Left bank only delineated. Wetland JA-W-008-B-WET likely begins on right bank. It is suspcted that the west boudary of JA-W-008_B-WET is continuous until the eastern boundary on the right bank of EF_S_1001.

Photograph Page

Stream EF_S_1001 Date 06/07/2022



Photograph Number 1

Photograph Direction South

Comments: Downstream



Photograph Number 2

Photograph Direction NE

Comments: Upstream

Photograph Number 3

Photograph Direction _____

Comments:

Photograph Number 4

Photograph Direction _____

Comments:

NC DWQ Stream Identification Form Version 4.11

Date: 6/15/2022	**Project/Site:** CVOW	**Latitude:** 36.769564
Evaluator: E. Foster, E.Deck, T. Conard	**County:** Virginia Beach	**Longitude:** -76.070997
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 25.25	**Stream Determination (circle one)** Ephemeral [Intermittent] Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 7.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	[2]	3
2. Sinuosity of channel along thalweg	0	[1]	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	[0]	1	2	3
6. Depositional bars or benches	0	[1]	2	3
7. Recent alluvial deposits	0	[1]	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	0	[0.5]	1	1.5
11. Second or greater order channel	[No = 0]		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	0	1	[2]	3
13. Iron oxidizing bacteria	[0]	1	2	3
14. Leaf litter	[1.5]	1	0.5	0
15. Sediment on plants or debris	0	0.5	[1]	1.5
16. Organic debris lines or piles	0	0.5	[1]	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 9.25)				
18. Fibrous roots in streambed	3	[2]	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	0	[1]	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	0	[0.5]	1	1.5
23. Crayfish	0	[0.5]	1	1.5
24. Amphibians	0	0.5	[1]	1.5
25. Algae	0	[0.5]	1	1.5
26. Wetland plants in streambed	[FACW = 0.75;] OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID EF_S_2002	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.769564 **LONG** -76.070997	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS E. Foster, E. Deck, T. Conard		**DATE** 06/15/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 13.0 ft
Top of Bank Height:
LB 5.0 ft RB 5.0 ft
Water Depth: 6.00 in
Water Width: 5.0 ft
Ordinary High Water Mark (Width): 6.0 ft
Ordinary High Water Mark (Height): 18.0 in
Flow Direction: North

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 36 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✓ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
X Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	15
Silt	0.004-0.06 mm	70
Clay	< 0.004 mm (slick)	15

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	10
Muck-Mud	black, very fine organic (FPOM)	15
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ✓ Residential
✓ ROW ___ Other:

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

Floodplain Width
___ Wide > 30ft ✓ Moderate 15-30ft
___ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

fed by stormwater pond at the top of the feature.

Photograph Page

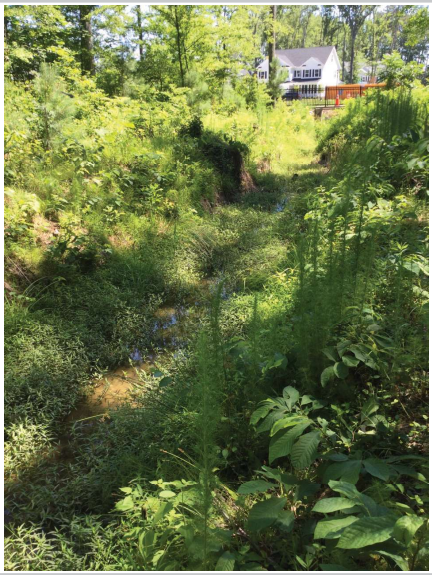
Stream EF_S_2002 Date 06/15/2022



Photograph Number 1

Photograph Direction North

Comments: Upstream



Photograph Number 2

Photograph Direction South

Comments: Downstream

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

Stream ID: JA_S_001

NC DWQ Stream Identification Form Version 4.11

Date: 4/11/22	**Project/Site:** CVOW	**Latitude:** 36.724271
Evaluator: Justin Ahn	**County:** City of Chesapeake	**Longitude:** -76.185828
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **35.5**	**Stream Determination (circle one)** Ephemeral Intermittent **Perennial**	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 13.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☐ 1	☐ 2	☑ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☐ 0	☐ 1	☐ 2	☑ 3
5. Active/relict floodplain	☐ 0	☐ 1	☐ 2	☑ 3
6. Depositional bars or benches	☑ 0	☐ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☐ 0	☐ 1	☐ 2	☑ 3
8. Headcuts	☐ 0	☑ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☑ 0	☐ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)				
12. Presence of Baseflow	☐ 0	☐ 1	☐ 2	☑ 3
13. Iron oxidizing bacteria	☑ 0	☐ 1	☐ 2	☐ 3
14. Leaf litter	☐ 1.5	☐ 1	☐ 0.5	☑ 0
15. Sediment on plants or debris	☐ 0	☐ 0.5	☐ 1	☑ 1.5
16. Organic debris lines or piles	☑ 0	☐ 0.5	☐ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 15.0)				
18. Fibrous roots in streambed	☑ 3	☐ 2	☐ 1	☐ 0
19. Rooted upland plants in streambed	☑ 3	☐ 2	☐ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☐ 0	☐ 1	☐ 2	☑ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☐ 0	☐ 0.5	☐ 1	☑ 1.5
23. Crayfish	☐ 0	☐ 0.5	☐ 1	☑ 1.5
24. Amphibians	☐ 0	☐ 0.5	☐ 1	☑ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75;	☑ OBL = 1.5	☐ Other = 0	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Carex vulpinoidea observed within streambed

Sketch:

STREAM ID JA_S_001	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.724271 **LONG** -76.18528	**STATE** Virginia	**COUNTY** City of Chesapeake	
INVESTIGATORS J. Ahn		**DATE** 04/11/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☑ Intermittent ☐ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 30.0 ft
Top of Bank Height:
LB 4.3 ft RB 4.3 ft
Water Depth: 48.00 in
Water Width: 30.0 ft
Ordinary High Water Mark (Width): 30.0 ft
Ordinary High Water Mark (Height): 48.0 in
Flow Direction: South

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ✓ Yes ___ No
Culvert Material: Corrugated Metal
Culvert Size: 48 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✓ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool %

Turbidity
✓ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	35

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Canopy Cover
___ Open ✓ Partly shaded
___ Shaded

Floodplain Width
___ Wide > 30ft ✓ Moderate 15-30ft
___ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Feature ID JA-S-001 Date04/11/2022



Photograph Number 1

Photograph Direction North

Comments: Facing upstream.



Photograph Number 2

Photograph Direction South

Comments: Facing downstream.

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

Stream ID: JA-S-003

NC DWQ Stream Identification Form Version 4.11

Date: 4/11/22	**Project/Site:** CVOW	**Latitude:** 36.754614
Evaluator: Justin Ahn	**County:** City of Chesapeake	**Longitude:** -76.115132
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **24.0**	**Stream Determination (circle one)** Ephemeral **Intermittent** Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 5.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☐ 1	☑ 2	☐ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☐ 0	☑ 1	☐ 2	☐ 3
5. Active/relict floodplain	☑ 0	☐ 1	☐ 2	☐ 3
6. Depositional bars or benches	☐ 0	☑ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☐ 0	☑ 1	☐ 2	☐ 3
8. Headcuts	☑ 0	☐ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☑ 0	☐ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	☐ 0	☐ 1	☑ 2	☐ 3
13. Iron oxidizing bacteria	☐ 0	☐ 1	☐ 2	☑ 3
14. Leaf litter	☐ 1.5	☐ 1	☑ 0.5	☐ 0
15. Sediment on plants or debris	☑ 0	☐ 0.5	☐ 1	☐ 1.5
16. Organic debris lines or piles	☑ 0	☐ 0.5	☐ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 8.0)				
18. Fibrous roots in streambed	☑ 3	☐ 2	☐ 1	☐ 0
19. Rooted upland plants in streambed	☑ 3	☐ 2	☐ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☑ 0	☐ 1	☐ 2	☐ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
23. Crayfish	☐ 0	☐ 0.5	☐ 1	☑ 1.5
24. Amphibians	☐ 0	☐ 0.5	☐ 1	☑ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75;	☑ OBL = 1.5	☐ Other = 0	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Alternanthera philoxeroides observed within streambed

Sketch:

STREAM ID JA_S_003	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.754614 **LONG** -76.115132	**STATE** Virginia	**COUNTY** City of Chesapeake	
INVESTIGATORS Justin Ahn		**DATE** 04/11/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 5.0 ft
Top of Bank Height:
LB 4.0 ft RB 4.0 ft
Water Depth: 2.00 in
Water Width: 4.0 ft
Ordinary High Water Mark (Width): 4.0 ft
Ordinary High Water Mark (Height): 12.0 in
Flow Direction: West

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✓ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 90 %
Pool 10 %

Turbidity
✓ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	30
Clay	< 0.004 mm (slick)	40

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	15
Muck-Mud	black, very fine organic (FPOM)	15
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
x Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Feature ID JA-S-003 Date 04/11/2022



Photograph Number 1

Photograph Direction East

Comments: Facing upstream.



Photograph Number 2

Photograph Direction West

Comments: Facing downstream.

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Stream ID: JA-S-003B

NC DWQ Stream Identification Form Version 4.11

Date: 4/20/22	**Project/Site**: CVOW	**Latitude:** 36.754614
Evaluator: Justin Ahn	**County:** City of Chesapeake	**Longitude:** -76.115132
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **19.0**	**Stream Determination (circle one)** Ephemeral **Intermittent** Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 3.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☐ 1	☑ 2	☐ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☑ 0	☐ 1	☐ 2	☐ 3
5. Active/relict floodplain	☐ 0	☑ 1	☐ 2	☐ 3
6. Depositional bars or benches	☑ 0	☐ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☑ 0	☐ 1	☐ 2	☐ 3
8. Headcuts	☑ 0	☐ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☑ 0	☐ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.0)				
12. Presence of Baseflow	☐ 0	☐ 1	☑ 2	☐ 3
13. Iron oxidizing bacteria	☐ 0	☐ 1	☑ 2	☐ 3
14. Leaf litter	☑ 1.5	☐ 1	☐ 0.5	☐ 0
15. Sediment on plants or debris	☐ 0	☐ 0.5	☑ 1	☐ 1.5
16. Organic debris lines or piles	☑ 0	☐ 0.5	☐ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 8.0)				
18. Fibrous roots in streambed	☐ 3	☑ 2	☐ 1	☐ 0
19. Rooted upland plants in streambed	☑ 3	☐ 2	☐ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☑ 0	☐ 1	☐ 2	☐ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
23. Crayfish	☐ 0	☑ 0.5	☐ 1	☐ 1.5
24. Amphibians	☐ 0	☐ 0.5	☑ 1	☐ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75;	☑ OBL = 1.5	☐ Other = 0	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Juncus effusus located within streambed

Sketch:

STREAM ID JA_S_003B	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.754614 **LONG** -76.115132	**STATE** Virginia	**COUNTY** City of Chesapeake	
INVESTIGATORS Justin Ahn		**DATE** 04/20/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 4.0 ft
Top of Bank Height:
LB 1.5 ft RB 1.5 ft
Water Depth: 1.00 in
Water Width: 3.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 0.5 in
Flow Direction: Southwest

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool 0 %

Turbidity
✓ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	35
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
✓ Field/Pasture ___ Industrial
___ Agricultural ✓ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Feature ID: JA-S-003B Date: 04/20/2022



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction East

Comments:



Photograph Number 3

Photograph Direction South

Comments:



Photograph Number 4

Photograph Direction West

Comments:

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Stream ID: JA-S-004

NC DWQ Stream Identification Form Version 4.11

Date: 4/21/22	**Project/Site:** CVOW	**Latitude:** 36.756307
Evaluator: Justin Ahn	**County:** City of Chesapeake	**Longitude:** -76.111946
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **37.5**	**Stream Determination (circle one)** Ephemeral Intermittent **Perennial**	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 11.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☐ 1	☑ 2	☐ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☐ 0	☐ 1	☐ 2	☑ 3
5. Active/relict floodplain	☐ 0	☐ 1	☐ 2	☑ 3
6. Depositional bars or benches	☑ 0	☐ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☐ 0	☐ 1	☐ 2	☑ 3
8. Headcuts	☑ 0	☐ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☑ 0	☐ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 11.5)				
12. Presence of Baseflow	☐ 0	☐ 1	☐ 2	☑ 3
13. Iron oxidizing bacteria	☐ 0	☐ 1	☐ 2	☑ 3
14. Leaf litter	☑ 1.5	☐ 1	☐ 0.5	☐ 0
15. Sediment on plants or debris	☐ 0	☐ 0.5	☑ 1	☐ 1.5
16. Organic debris lines or piles	☑ 0	☐ 0.5	☐ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 15.0)				
18. Fibrous roots in streambed	☑ 3	☐ 2	☐ 1	☐ 0
19. Rooted upland plants in streambed	☑ 3	☐ 2	☐ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☐ 0	☐ 1	☐ 2	☑ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☐ 0	☐ 0.5	☐ 1	☑ 1.5
23. Crayfish	☐ 0	☐ 0.5	☐ 1	☑ 1.5
24. Amphibians	☐ 0	☐ 0.5	☐ 1	☑ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75;	☑ OBL = 1.5	☐ Other = 0	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Sagittaria latifolia located within streambed. Streambed too dangerous to properly assess biology.

Biology section completed by observing from streambed. Stonefly and mayfly larva observed under rocks by bed.

Sketch:

STREAM ID JA_S_004	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.756307 **LONG** -76.111946	**STATE** Virginia	**COUNTY** City of Chesapeake	
INVESTIGATORS Justin Ahn		**DATE** 04/21/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☑ Intermittent ☐ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 30.0 ft
Top of Bank Height:
LB 2.0 ft RB 2.0 ft
Water Depth: 24.00 in
Water Width: 30.0 ft
Ordinary High Water Mark (Width): 30.0 ft
Ordinary High Water Mark (Height): 24.0 in
Flow Direction: Northwest

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool 0 %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	40
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ✓ Residential
✓ ROW ___ Other:

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Sagittaria latifolia located within stream bed. Depth loosely estimated due to dangerous conditions of stream.

Photograph Page

Feature ID: JA-S-004 Date: 04/21/2022



Photograph Number 1

Photograph Direction NW

Comments: Facing downstream



Photograph Number 2

Photograph Direction SE

Comments: Facing downstream



Photograph Number 3

Photograph Direction East

Comments: Bank width

Photograph Number 4

Photograph Direction

Comments:

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Stream ID: JA-S-005

NC DWQ Stream Identification Form Version 4.11

Date: 4/21/22	**Project/Site**: CVOW	**Latitude:** 36.715525
Evaluator: Justin Ahn	**County:** City of Virginia Beach	**Longitude:** -76.167685
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **7.5**	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 1.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☑ 1	☐ 2	☐ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☑ 0	☐ 1	☐ 2	☐ 3
5. Active/relict floodplain	☑ 0	☐ 1	☐ 2	☐ 3
6. Depositional bars or benches	☑ 0	☐ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☑ 0	☐ 1	☐ 2	☐ 3
8. Headcuts	☑ 0	☐ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☑ 0	☐ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 4.5)				
12. Presence of Baseflow	☑ 0	☐ 1	☐ 2	☐ 3
13. Iron oxidizing bacteria	☑ 0	☐ 1	☐ 2	☐ 3
14. Leaf litter	☑ 1.5	☐ 1	☐ 0.5	☐ 0
15. Sediment on plants or debris	☑ 0	☐ 0.5	☐ 1	☐ 1.5
16. Organic debris lines or piles	☑ 0	☐ 0.5	☐ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 2.0)				
18. Fibrous roots in streambed	☐ 3	☐ 2	☑ 1	☐ 0
19. Rooted upland plants in streambed	☐ 3	☐ 2	☑ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☑ 0	☐ 1	☐ 2	☐ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
23. Crayfish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
24. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75;	☐ OBL = 1.5	☑ Other = 0	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID JA_S_005	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.715525 **LONG** -76.167685	**STATE** Virginia	**COUNTY** City of Virginia Beach	
INVESTIGATORS Justin Ahn		**DATE** 04/21/2022	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 0.5 ft RB 0.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 2.0 ft
Ordinary High Water Mark (Height): 6.0 in
Flow Direction: North

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
✓ Yes ___ No

Culvert Present ✓ Yes ___ No
Culvert Material: Concrete
Culvert Size: 12 in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
X Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 95 %
Pool 5 %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	40
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ✓ Residential
✓ ROW ___ Other:

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Feature ID: JA-S-005 Date: 04/21/2022



Photograph Number 1

Photograph Direction North

Comments: Facing upstream



Photograph Number 2

Photograph Direction South

Comments: Facing downstream

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Stream ID: JA-S-006

NC DWQ Stream Identification Form Version 4.11

Date: 4/21/22	**Project/Site**: CVOW	**Latitude:** 36.790789
Evaluator: Justin Ahn	**County:** City of Virginia Beach	**Longitude:** -76.020988
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **23.5**	**Stream Determination (circle one)** Ephemeral **Intermittent** Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 4.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☑ 1	☐ 2	☐ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☐ 0	☑ 1	☐ 2	☐ 3
5. Active/relict floodplain	☑ 0	☐ 1	☐ 2	☐ 3
6. Depositional bars or benches	☐ 0	☑ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☐ 0	☑ 1	☐ 2	☐ 3
8. Headcuts	☑ 0	☐ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☐ 0	☑ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9.5)				
12. Presence of Baseflow	☐ 0	☑ 1	☐ 2	☐ 3
13. Iron oxidizing bacteria	☐ 0	☐ 1	☐ 2	☑ 3
14. Leaf litter	☐ 1.5	☑ 1	☐ 0.5	☐ 0
15. Sediment on plants or debris	☐ 0	☑ 0.5	☐ 1	☐ 1.5
16. Organic debris lines or piles	☐ 0	☐ 0.5	☑ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 9.5)				
18. Fibrous roots in streambed	☐ 3	☑ 2	☐ 1	☐ 0
19. Rooted upland plants in streambed	☑ 3	☐ 2	☐ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☐ 0	☑ 1	☐ 2	☐ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
23. Crayfish	☐ 0	☐ 0.5	☑ 1	☐ 1.5
24. Amphibians	☐ 0	☐ 0.5	☑ 1	☐ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75;	☑ OBL = 1.5	☐ Other = 0	

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Persicaria hydropiperoides observed within streambed

Sketch:

STREAM ID JA_S_006	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.790789 **LONG** -76.020988	**STATE** Virginia	**COUNTY** City of Virginia Beach	
INVESTIGATORS Justin Ahn		**DATE** 04/21/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 15.0 ft
Top of Bank Height:
LB 4.0 ft RB 4.0 ft
Water Depth: 2.00 in
Water Width: 10.0 ft
Ordinary High Water Mark (Width): 10.0 ft
Ordinary High Water Mark (Height): 6.0 in
Flow Direction: Southwest

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool 0 %

Turbidity
X Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	40
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	15
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ✓ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Persicaria hydropoperoides observed in stream bed.

Photograph Page

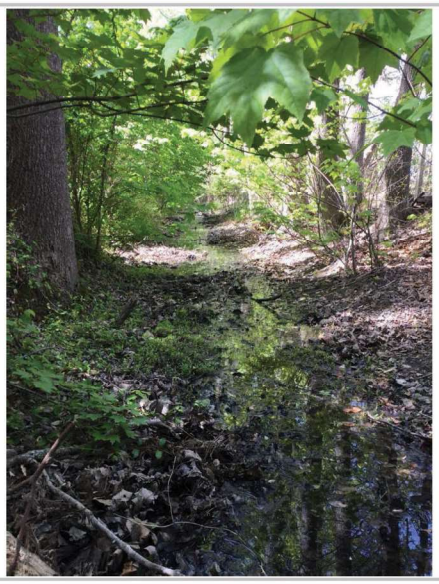
Feature ID JA_S_006 Date 04/22/2022



Photograph Number 1

Photograph Direction NE

Comments: Facing upstream.



Photograph Number 2

Photograph Direction SW

Comments: Facing downstream.

Photograph Number 3

Photograph Direction _____

Comments:

Photograph Number 4

Photograph Direction _____

Comments:

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Stream ID: JA-S-007

NC DWQ Stream Identification Form Version 4.11

Date: 4/21/22	**Project/Site**: CVOW	**Latitude:** 36.751414
Evaluator: Justin Ahn	**County:** City of Virginia Beach	**Longitude:** -76.121843
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **14.5**	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☐ 1	☑ 2	☐ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☑ 0	☐ 1	☐ 2	☐ 3
5. Active/relict floodplain	☑ 0	☐ 1	☐ 2	☐ 3
6. Depositional bars or benches	☑ 0	☐ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☐ 0	☑ 1	☐ 2	☐ 3
8. Headcuts	☑ 0	☐ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☐ 0	☑ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5.0)				
12. Presence of Baseflow	☑ 0	☐ 1	☐ 2	☐ 3
13. Iron oxidizing bacteria	☑ 0	☐ 1	☐ 2	☐ 3
14. Leaf litter	☑ 1.5	☐ 1	☐ 0.5	☐ 0
15. Sediment on plants or debris	☐ 0	☑ 0.5	☐ 1	☐ 1.5
16. Organic debris lines or piles	☑ 0	☐ 0.5	☐ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 6.0)				
18. Fibrous roots in streambed	☑ 3	☐ 2	☐ 1	☐ 0
19. Rooted upland plants in streambed	☑ 3	☐ 2	☐ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☑ 0	☐ 1	☐ 2	☐ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
23. Crayfish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
24. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75; ☐ OBL = 1.5 ☑ Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID JA_S_007	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.751414 **LONG** -76.121843	**STATE** Virginia	**COUNTY** City of Virginia Beach	
INVESTIGATORS Justin Ahn		**DATE** 04/21/2022	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 3.0 ft
Top of Bank Height:
LB 0.8 ft RB 0.8 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 2.5 ft
Ordinary High Water Mark (Height): 0.5 in
Flow Direction: Northeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✓ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✓ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool 0 %

Turbidity
X Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	40
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ✓ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Feature ID JA_S_007 Date: 04/21/2022



Photograph Number 1

Photograph Direction NW

Comments: Facing upstream.



Photograph Number 2

Photograph Direction SE

Comments: Facing downstream.

Photograph Number 3

Photograph Direction _____

Comments:

Photograph Number 4

Photograph Direction _____

Comments:

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Stream ID: JA-S-008B

NC DWQ Stream Identification Form Version 4.11

Date: 4/21/22	**Project/Site**: CVOW	**Latitude:** 36.751632
Evaluator: Justin Ahn	**County:** City of Virginia Beach	**Longitude:** -76.121328
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** **11.0**	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 1.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	☐ 0	☑ 1	☐ 2	☐ 3
2. Sinuosity of channel along thalweg	☑ 0	☐ 1	☐ 2	☐ 3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	☑ 0	☐ 1	☐ 2	☐ 3
4. Particle size of stream substrate	☑ 0	☐ 1	☐ 2	☐ 3
5. Active/relict floodplain	☑ 0	☐ 1	☐ 2	☐ 3
6. Depositional bars or benches	☑ 0	☐ 1	☐ 2	☐ 3
7. Recent alluvial deposits	☑ 0	☐ 1	☐ 2	☐ 3
8. Headcuts	☑ 0	☐ 1	☐ 2	☐ 3
9. Grade control	☑ 0	☐ 0.5	☐ 1	☐ 1.5
10. Natural valley	☑ 0	☐ 0.5	☐ 1	☐ 1.5
11. Second or greater order channel	☑ No = 0		☐ Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 4.0)				
12. Presence of Baseflow	☑ 0	☐ 1	☐ 2	☐ 3
13. Iron oxidizing bacteria	☑ 0	☐ 1	☐ 2	☐ 3
14. Leaf litter	☐ 1.5	☑ 1	☐ 0.5	☐ 0
15. Sediment on plants or debris	☑ 0	☐ 0.5	☐ 1	☐ 1.5
16. Organic debris lines or piles	☑ 0	☐ 0.5	☐ 1	☐ 1.5
17. Soil-based evidence of high water table?	☐ No = 0		☑ Yes = 3	

C. Biology (Subtotal = 6.0)				
18. Fibrous roots in streambed	☑ 3	☐ 2	☐ 1	☐ 0
19. Rooted upland plants in streambed	☑ 3	☐ 2	☐ 1	☐ 0
20. Macrobenthos (note diversity and abundance)	☑ 0	☐ 1	☐ 2	☐ 3
21. Aquatic Mollusks	☑ 0	☐ 1	☐ 2	☐ 3
22. Fish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
23. Crayfish	☑ 0	☐ 0.5	☐ 1	☐ 1.5
24. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
25. Algae	☑ 0	☐ 0.5	☐ 1	☐ 1.5
26. Wetland plants in streambed	☐ FACW = 0.75; ☐ OBL = 1.5 ☑ Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID JA_S_008	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.751632 **LONG** -76.121328	**STATE** Virginia	**COUNTY** City of Virginia Beach	
INVESTIGATORS Justin Ahn		**DATE** 04/21/2022	
WATER TYPE TNW ☐ RPW ☐ NRPW ☑	**FLOW REGIME** Perennial ☐ Intermittent ☐ Ephemeral ☑		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 0.5 ft RB 0.5 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 2.0 ft
Ordinary High Water Mark (Height): 0.5 in
Flow Direction: Northeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
___ None ✓ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✓ No

Within Roadside Ditch
___ Yes X No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
✓ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 100 %
Pool 0 %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	33
Silt	0.004-0.06 mm	33
Clay	< 0.004 mm (slick)	34

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ✓ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✓ Narrow <15ft

Canopy Cover
✓ Open ___ Partly shaded
___ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Feature ID JA_S_008 Date04/21/2022



Photograph Number 1

Photograph Direction West

Comments: Facing upstream.



Photograph Number 2

Photograph Direction SSE

Comments: Facing downstream.

Photograph Number 3

Photograph Direction _____

Comments:

Photograph Number 4

Photograph Direction _____

Comments:

NC DWQ Stream Identification Form Version 4.11

Date: 6/3/2022	**Project/Site:** CVOW	**Latitude:** 36.758096
Evaluator: E.Deck, T. Conard	**County:** Virginia Beach	**Longitude:** -76.107801
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 22	**Stream Determination (circle one)** Ephemeral [Intermittent] Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 6.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	[2]	3
2. Sinuosity of channel along thalweg	0	[1]	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	0	[1]	2	3
6. Depositional bars or benches	[0]	1	2	3
7. Recent alluvial deposits	[0]	1	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	0	[0.5]	1	1.5
11. Second or greater order channel	[No = 0]		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)				
12. Presence of Baseflow	0	1	[2]	3
13. Iron oxidizing bacteria	0	[1]	2	3
14. Leaf litter	1.5	[1]	0.5	0
15. Sediment on plants or debris	[0]	0.5	1	1.5
16. Organic debris lines or piles	[0]	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 8.5)				
18. Fibrous roots in streambed	[3]	2	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	0	[1]	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	[0]	0.5	1	1.5
23. Crayfish	0	[0.5]	1	1.5
24. Amphibians	0	[0.5]	1	1.5
25. Algae	0	[0.5]	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 [Other = 0]			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID TC_S_001	**STREAM NAME** UT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.758096 **LONG** -76.107801	**STATE** Virginia	**COUNTY** Virginia Beach	
INVESTIGATORS T, Conard, E. Deck		**DATE** 06/03/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 10.0 ft
Top of Bank Height:
LB 1.0 ft RB 12.0 ft
Water Depth: 4.00 in
Water Width: 2.0 ft
Ordinary High Water Mark (Width): 8.0 ft
Ordinary High Water Mark (Height): 10.0 in
Flow Direction: Northwest

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
X Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✓ Flowing water

Velocity
___ Fast ___ Moderate
✓ Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle 10 % Run 90 %
Pool %

Turbidity
✓ Clear ___ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	25
Silt	0.004-0.06 mm	75
Clay	< 0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	40
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
✓ ROW ___ Other:

Canopy Cover
___ Open X Partly shaded
___ Shaded

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
X Narrow <15ft

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

algae and aquatic insects observed.

Photograph Page

Stream TC_S_001 Date 06/03/2022



Photograph Number 1

Photograph Direction SW

Comments:



Photograph Number 2

Photograph Direction NW

Comments:

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

TC_S_01

NC DWQ Stream Identification Form Version 4.11

Date: 5/31/2022	**Project/Site:**	**Latitude:** 36.768996
Evaluator: T. Conard, E. Foster	**County:** City of Virginia Beach	**Longitude:** -76.074178
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 23	**Stream Determination (circle one)** Ephemeral [Intermittent] Perennial	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 7)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	[2]	3
2. Sinuosity of channel along thalweg	[0]	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	[0]	1	2	3
6. Depositional bars or benches	[0]	1	2	3
7. Recent alluvial deposits	[0]	1	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	[0]	0.5	1	1.5
11. Second or greater order channel	No = 0		[Yes = 3]	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9)				
12. Presence of Baseflow	0	1	2	[3]
13. Iron oxidizing bacteria	0	[1]	2	3
14. Leaf litter	1.5	1	[0.5]	0
15. Sediment on plants or debris	0	[0.5]	1	1.5
16. Organic debris lines or piles	0	0.5	[1]	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 7)				
18. Fibrous roots in streambed	[3]	2	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	[0]	1	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	[0]	0.5	1	1.5
23. Crayfish	0	[0.5]	1	1.5
24. Amphibians	0	[0.5]	1	1.5
25. Algae	[0]	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 [Other = 0]			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

STREAM ID TC_S_01	**STREAM NAME** UNT		
CLIENT Dominion	**PROJECT NAME** CVOW		
LAT 36.768996 **LONG** -76.074178	**STATE** Virginia	**COUNTY** City of Virginia Beach	
INVESTIGATORS T. Conard, E. Foster		**DATE** 05/31/2022	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐		

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 7.0 ft
Top of Bank Height:
LB 3.0 ft RB 3.0 ft
Water Depth: 2.00 in
Water Width: 5.0 ft
Ordinary High Water Mark (Width): 5.0 ft
Ordinary High Water Mark (Height): 4.0 in
Flow Direction: Northeast

Sinuosity ✓ Low ___ Medium ___ High

Gradient ✓ Flat (0.5/100 ft) ___ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

Stream Erosion
✓ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✓ Yes ___ No

Within Roadside Ditch
___ Yes ✓ No

Culvert Present ___ Yes ✓ No
Culvert Material:_____
Culvert Size: _____in

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✓ Flowing water

Velocity
___ Fast ___ Moderate
X Slow

Proportion of Reach Represented by Stream Morphology Types (Only enter if water present)
Riffle % Run 5 %
Pool 95 %

Turbidity
___ Clear ✓ Slightly turbid ___ Turbid
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	35
Silt	0.004-0.06 mm	35
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✓ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ ROW ___ Other:

Floodplain Width
___ Wide > 30ft ✓ Moderate 15-30ft
___ Narrow <15ft

Canopy Cover
___ Open ___ Partly shaded
✓ Shaded

MACROINVERTEBRATES/OTHER WILDLIFE OBSERVED OR OTHER NOTES AND OBSERVATIONS

Photograph Page

Stream ID TC-S-01 Date 05/31/2022



Photograph Number 1

Photograph Direction NE

Comments: Facing upstream



Photograph Number 2

Photograph Direction SW

Comments: Facing downstream

Photograph Number 3

Photograph Direction

Comments:

Photograph Number 4

Photograph Direction

Comments:

NC DWQ Stream Identification Form Version 4.11

Date: 5/19/2021	**Project/Site:** Dominion CVOW	**Latitude:** 36.7703313
Evaluator: J. Crosby and M. Buckalew	**County:** Virginia Beach	**Longitude:** -76.043736
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 36.5	**Stream Determination (circle one)** Ephemeral Intermittent **[Perennial]**	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 16.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	[2]	3
2. Sinuosity of channel along thalweg	0	1	2	[3]
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	[1]	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	0	[1]	2	3
6. Depositional bars or benches	0	1	[2]	3
7. Recent alluvial deposits	0	[1]	2	3
8. Headcuts	0	[1]	2	3
9. Grade control	0	0.5	[1]	1.5
10. Natural valley	0	[0.5]	1	1.5
11. Second or greater order channel	No = 0		[Yes = 3]	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 11)				
12. Presence of Baseflow	0	1	2	[3]
13. Iron oxidizing bacteria	0	[1]	2	3
14. Leaf litter	[1.5]	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	[1.5]
16. Organic debris lines or piles	0	0.5	[1]	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 9)				
18. Fibrous roots in streambed	[3]	2	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	0	[1]	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	0	0.5	[1]	1.5
23. Crayfish	0	[0.5]	1	1.5
24. Amphibians	0	[0.5]	1	1.5
25. Algae	[0]	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 [Other = 0]			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

Photograph Page

Stream ID Jcros S 001 Date 05/19/2021



Photograph Number 1

Photograph Direction North

Comments:



Photograph Number 2

Photograph Direction South

Comments:

Photograph Number _____

Photograph Direction _____

Comments:

Photograph Number _____

Photograph Direction _____

Comments:

NC DWQ Stream Identification Form Version 4.11

Date: 5/11/2021	**Project/Site:** Dominion CVOW	**Latitude:** 36.768273
Evaluator: J. D'Augustine, L. Donston	**County:** Virginia Beach	**Longitude:** -76.084147
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 15.25	**Stream Determination (circle one)** [Ephemeral] Intermittent Perennial	**Other** *e.g. Quad Name*: Princess Anne, V

A. Geomorphology (Subtotal = 5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	[3]
2. Sinuosity of channel along thalweg	[0]	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	[0]	1	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	[0]	1	2	3
6. Depositional bars or benches	[0]	1	2	3
7. Recent alluvial deposits	[0]	1	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	0	[0.5]	1	1.5
10. Natural valley	0	[0.5]	1	1.5
11. Second or greater order channel	[No = 0]		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3)				
12. Presence of Baseflow	[0]	1	2	3
13. Iron oxidizing bacteria	[0]	1	2	3
14. Leaf litter	[1.5]	1	0.5	0
15. Sediment on plants or debris	0	0.5	[1]	1.5
16. Organic debris lines or piles	0	[0.5]	1	1.5
17. Soil-based evidence of high water table?	[No = 0]		Yes = 3	

C. Biology (Subtotal = 7.25)				
18. Fibrous roots in streambed	[3]	2	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	[0]	1	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	[0]	0.5	1	1.5
23. Crayfish	[0]	0.5	1	1.5
24. Amphibians	[0]	0.5	1	1.5
25. Algae	0	[0.5]	1	1.5
26. Wetland plants in streambed	[FACW = 0.75;] OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Standing pools of water observed, saturated thalweg but no flow observed, heavily vegetated with Persecaria maculosa (FACW)

Sketch:

Photograph Log

Date: 5/11/21

Feature Name: JD_S_002



Photograph Direction NW

Comments:



Photograph Direction SE

Comments:

Photograph Direction _____

Comments:

Photograph Direction _____

Comments:

JD_S_005 **UT of North Landing River**

NC DWQ Stream Identification Form Version 4.11

Date: 5/14/2021	**Project/Site:** Dominion CVOW	**Latitude:** 36.759497
Evaluator: J. D'Augustine, R. Brydon	**County:** Virginia Beach	**Longitude:** -76.099451
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 30	**Stream Determination (circle one)** Ephemeral Intermittent [Perennial]	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 11.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	[3]
2. Sinuosity of channel along thalweg	0	[1]	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	[0]	1	2	3
4. Particle size of stream substrate	0	1	[2]	3
5. Active/relict floodplain	[0]	1	2	3
6. Depositional bars or benches	0	1	[2]	3
7. Recent alluvial deposits	[0]	1	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	0	[0.5]	1	1.5
11. Second or greater order channel	No = 0		[Yes = 3]	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	0	1	2	[3]
13. Iron oxidizing bacteria	[0]	1	2	3
14. Leaf litter	[1.5]	1	0.5	0
15. Sediment on plants or debris	0	[0.5]	1	1.5
16. Organic debris lines or piles	0	[0.5]	1	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 10)				
18. Fibrous roots in streambed	[3]	2	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	[2]	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	0	0.5	[1]	1.5
23. Crayfish	[0]	0.5	1	1.5
24. Amphibians	0	0.5	[1]	1.5
25. Algae	[0]	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 [Other = 0]			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch: Mapped on the USGS Topo Quad as a perennial tributary of the North Landing River.

Photograph Log

Date: 5/14/21

Feature Name: JD_S_005



Photograph Direction East

Comments:



Photograph Direction West

Comments:

Photograph Direction _____

Comments:

Photograph Direction _____

Comments:

JD_S_009

NC DWQ Stream Identification Form Version 4.11

Date: 5/19/2021	**Project/Site:** Dominion CVOW	**Latitude:** 36.770464
Evaluator: J. D'Augustine, K. Walls	**County:** Chesapeake	**Longitude:** -76.045993
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20	**Stream Determination (circle one)** Ephemeral [Intermittent] Perennial	**Other** *e.g. Quad Name:*

A. Geomorphology (Subtotal = 7)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	[3]
2. Sinuosity of channel along thalweg	0	[1]	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	[0]	1	2	3
4. Particle size of stream substrate	0	[1]	2	3
5. Active/relict floodplain	[0]	1	2	3
6. Depositional bars or benches	0	[1]	2	3
7. Recent alluvial deposits	[0]	1	2	3
8. Headcuts	[0]	1	2	3
9. Grade control	[0]	0.5	1	1.5
10. Natural valley	0	0.5	[1]	1.5
11. Second or greater order channel	[No = 0]		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7)				
12. Presence of Baseflow	0	1	[2]	3
13. Iron oxidizing bacteria	[0]	1	2	3
14. Leaf litter	1.5	[1]	0.5	0
15. Sediment on plants or debris	[0]	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	[1]	1.5
17. Soil-based evidence of high water table?	No = 0		[Yes = 3]	

C. Biology (Subtotal = 6)				
18. Fibrous roots in streambed	[3]	2	1	0
19. Rooted upland plants in streambed	[3]	2	1	0
20. Macrobenthos (note diversity and abundance)	[0]	1	2	3
21. Aquatic Mollusks	[0]	1	2	3
22. Fish	[0]	0.5	1	1.5
23. Crayfish	[0]	0.5	1	1.5
24. Amphibians	[0]	0.5	1	1.5
25. Algae	[0]	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 [Other = 0]			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch: Mapped on the USGS Topo Quad as a perennial tributary of the North Landing River.