Appendix D – Wetland Delineation Report

Waters of the US and Wetlands Delineation Report

MARINA WAY EXTENTION PROJECT

Prince William County, Virginia

Project Identifier 23C17011
VDOT UPC 120778

Submitted to:
Prince William County Department of Transportation

February 2024

Executive Summary

Johnson, Mirmiran & Thompson (JMT) has conducted a delineation of jurisdictional waters of the U.S. (WOUS), including wetlands, within a 20.8 acre study area located in Prince William County, Virginia. (Figure 1) The project involves extending Marina Way from Annapolis Way to Horner Road at Gordon Boulevard with a four-lane divided roadway and associated pedestrian facilities. This report is intended to document the findings of the delineation investigation conducted by JMT in order to obtain a preliminary jurisdictional determination (PJD) from the U.S. Army Corps of Engineers (USACE).

There are approximately 0.14 acres of palustrine forested wetland within the study area.

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Site Description

The proposed project is located within Prince William County between the Annapolis Way and Horner Road at Route 123 (Gordon Boulevard) and lies within the Coastal Plain physiographic province. The study area is approximately 20.8 acres. To gain access to the site from I-95 northbound, take exit 160A and continue on Route 123 (Gordon Boulevard) east, then turn north onto Horner Road.

The southern portion of the study area is completely paved. This area is used for customer parking that serves the stores located in the center of the study area (Figure 1). The northern portion of the study area is forest land consisting of mostly mixed, broad-leaf, deciduous forested communities that transition to old field/disturbed communities closer to Annapolis Way. Elevation ranges from approximately 70 to 100 feet above mean sea level (amsl) within an area that is predominantly developed (Figure 2). The study area watershed flows to Popes Head Creek which is part of the Middle Potomac – Anacostia – Occoquan River (Hydrologic Unit Code [HUC] 02070010). Elevations on the site range from approximately 71 to 91 feet above mean sea level (amsl). The latitude and longitude of the approximate center of the site are N 38.665503°, W -77.246582°. Mapping from the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) Panel 51153C0236E (Dated 8/3/215) is shown in Figure 3 and documents that the study area is not located within a FEMA 100-year floodplain (FEMA, 2015).

Field Investigation Methodology

A field investigation was conducted to delineate potentially jurisdictional Waters of the U.S. (WOUS), including wetlands within the study area. A wetland delineation was performed according to the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Regional Supplement, Version 2.0, (USACE, 2010). The Corps of Engineers Wetland Delineation Manual states three criteria (wetland vegetation, wetland soils, and wetland hydrology) must be present for an area to qualify as a wetland, unless the area is significantly disturbed (atypical situation) or is considered a problem area (e.g., seasonally ponded soils). If the area is significantly disturbed or a problem area, then only two parameters must be evident to classify an area as a wetland. All delineated wetlands are classified into system, subsystem, class, and subclass according to the Classification of Wetlands and Deep Water Habitats of the United States (Cowardin et al., 1979).

In order to delineate wetland boundaries, samples were taken periodically using a dutch auger. Soil samples were collected at each wetland and upland sample point, and soil colors were recorded in the field using a Munsell soil color chart (Munsell Color, 2010). NRCS digital soils data and mapping were obtained from the NRCS website and were compared for consistency to the observed conditions encountered during the field investigations. These data were augmented by review of soils data for the property. Site photographs are included in Appendix A; a photo location key is included to orient photographic location within the site. All figures associated with desktop review and field delineation are located in Appendix B.

Samples of vegetation, soils, and hydrology were taken at representative locations that were possible wetlands and adjacent non-wetland areas to determine the potential wetland boundaries. Wetland Determination Data Forms describing representative plant communities, hydrology indicators, and soil characteristics are included in Appendix C. WOUS boundaries were flagged in the field and documented using a Trimble® global positioning system (GPS) capable of sub-meter accuracy.

Findings

PUBLISHED INFORMATION

Prior to conducting the fieldwork, a desktop review of published information was performed to identify known site conditions and to determine the presence of known jurisdictional wetlands and/or WOUS in the study area. The bullets below provide a list of the references utilized and their effective dates.

- Fort Belvoir, Virginia 7.5' x 7.5' Topographic Quadrangle (USGS, 2019) (**Figure 2**);
- FEMA FIRM Panel. Prince William County, Virginia. Map #51153C0236E (FEMA, 2010) (**Figure 3**)
- National Wetlands Inventory (NWI) (USFWS, 2017) (**Figure 4**);
- Web Soil Survey. Prince William County, Virginia (USDA/NRCS, 2021) (**Figure 5**); and

All figures are presented in Appendix B.

NWI mapping shows a palustrine freshwater emergent wetland (PEM) within the project study area **(Figure 4).** No other NWI-mapped wetlands or WOUS were identified in the desktop review.

Mapped soils information is presented in Table 1 below and no mapped hydric soils or soils with hydric inclusions (shown as Percent Hydric Presence) were identified within the project area. One soil map unit (54B) was not classified by hydric rating or % Hydric Presence, but is urban land and other disturbed soils that are highly variable and not typically expected to have hydric features. Mapped soils are shown in Figure 5.

TABLE 1. SOIL UNITS MAPPED WITHIN THE STUDY AREA

MAP UNIT SYMBOL	MAP UNIT NAME	MAP UNIT PROPERTIES	HYDRIC RATING	% HYDRIC PRESENCE
18D	Dumfries sandy loam, 15 to 25 percent slopes	Not prime farmland	Not hydric	0
42B	Neabsco-Quantico complex, 2 to 7 percent slopes	Not prime farmland	Not hydric	0
54B	Urban land-Udorthents complex, 0 to 7 percent slopes	Not prime farmland	Unclassified	Unclassified

Source: USDA-NRCS Soil Survey 2021

FIELD INVESTIGATIONS

Field investigations were conducted on June 13, 2023, by JMT environmental scientists Amy Musselman and Steven Swarr, to identify and delineate wetlands and WOUS within the study area. A pedestrian survey of the entire undeveloped limits within the property was conducted and potential jurisdictional areas identified during desktop review were investigated. Due to design constraints, the study area was expanded. A pedestrian survey of the additional area was performed on February 27, 2024. Two upland sample plots were taken to provide a representation of the study area and one wetland data point was collected, following the USACE regional supplement methods; one upland data point (DPU 1) was taken in the vicinity of the NWI-mapped wetland feature and documents absence of hydric soils, hydrology and wetland vegetation in this location. JMT delineated one forested wetland adjacent to the developed portions of the property. The location of the delineated system is shown on the Waters of the US Delineation Map in Figure 6. Photographic documentation is included in Appendix A. Wetland data sheets are in Appendix C.

Wetlands

Wetland A - Wetland A is an isolated palustrine forested (PFO) wetland located in the central portion of the project area along the SW edge of the undeveloped, vegetated area (Figure 6). The primary hydrology indicators throughout this wetland included standing water and water-stained leaves. The secondary hydrology indicators included a FAC-neutral test and drainage patterns. There was standing water (approximately 12 inches deep) where the wetland data point was taken. The dominant vegetation where the wetland data point was taken included willow oak (*Quercus phellos*) and common reed *(Phragmites australis)*. Vegetation throughout the wetland was consistent with the wetland data point. Soils were hydric with a matrix chroma of 10 YR 4/4 from 0-4 inches and 10 YR 3/2 from 4 plus inches. Soils were a silt loam. See Appendix C – Data Sheets for additional information.

TABLE 2. WETLANDS AND WATERS OF THE US IDENTIFIED WITHIN THE STUDY AREA

MAP ID	NAME	CLASSIFICATION	LENGTH (FT)	AREA (SQ FT)
Wet A	N/A	PFO	N/A	5,987

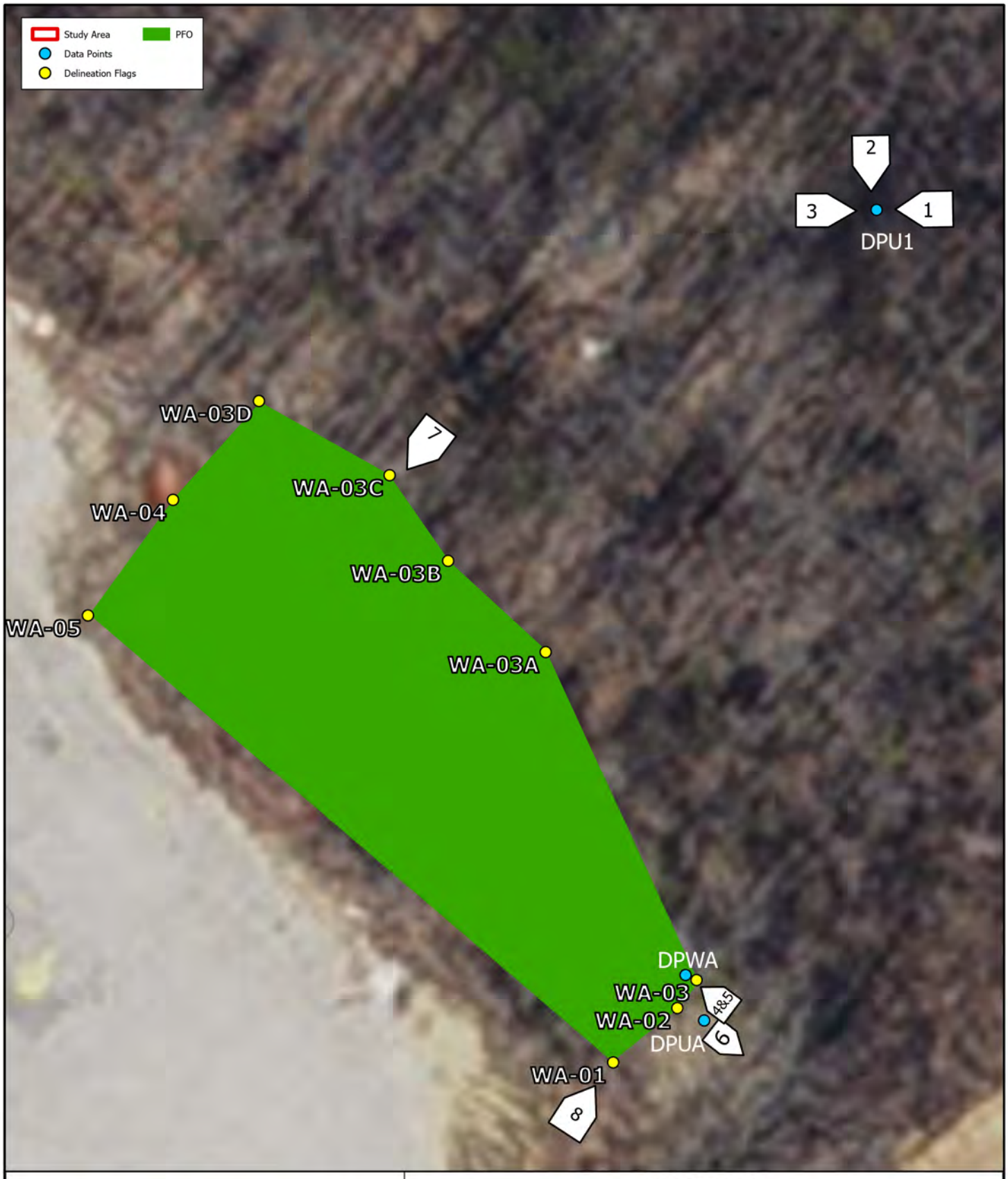
Regulatory Requirements and Limitations

The limits of WOUS described in this report are based on an examination of field conditions at the time of this investigation and may differ from future observations by others. This report does not constitute a jurisdictional determination; such determinations must be verified by the USACE or VA Department of Environmental Quality (VDEQ). Given the isolated nature of the wetland identified onsite, it is unlikely the USACE will exert jurisdiction over this feature. However, VDEQ currently conducts State Surface Water Determinations and may review this delineation upon request.

Resources not jurisdictional to USACE may still be regulated by VDEQ. Section 404 of the Clean Water Act authorizes the USACE to regulate the placement of fill in jurisdictional areas. Virginia Administrative Code (9VAC25-690-100) authorizes VDEQ to regulate activities in state waters, which includes wetlands, streams and waterbodies. Any proposed impacts to WOUS may require authorization from the appropriate federal, state, and/or local regulatory agencies.

Prince William County's Chesapeake Bay Preservation Ordinance is enacted to mandate the authority of the Chesapeake Bay Preservation Act (CBPA). The CBPA protects environmentally sensitive features which contribute to the water quality in the Chesapeake Bay. RPAs include both tidal and nontidal wetlands, as well as tidal shores, intermittent streams, water bodies with a perennial flow, and a 100-foot vegetated buffer area located adjacent to the aforementioned features. According to Section 118-5-2(a), public roads, such as this project, are exempt from the provisions of the Ordinance.

APPENDIX A
PHOTOGRAPHIC DOCUMENTATION



N

Sources: Hybrid Reference Layer: Esri Community Maps Contributors, County of Prince William, Fairfax County, VA, VGIN, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA
Aerial Photography Most Recent (VGIN): Virginia Geographic Information Network (VGIN)

APPENDIX A
PHOTODOCUMENTATION LOCATION KEY

MARINA WAY EXTENSION (UPC 120778)

0 10 20
Feet

Prince William County, VA

Photo 1: View of DPU1 facing west.

Photo 2: View of DPU1 facing south.

Photo 3: View of DPU1 facing east.

Photo 4: View of DPWA facing northwest.

Photo 5: View of DPWA facing northwest.

Photo 6: View of DPUA facing east.

Photo 7: View of Wetland A (PFO) facing southwest.

Photo 8: View of Wetland A (PFO) facing northeast.

APPENDIX B
FIGURES

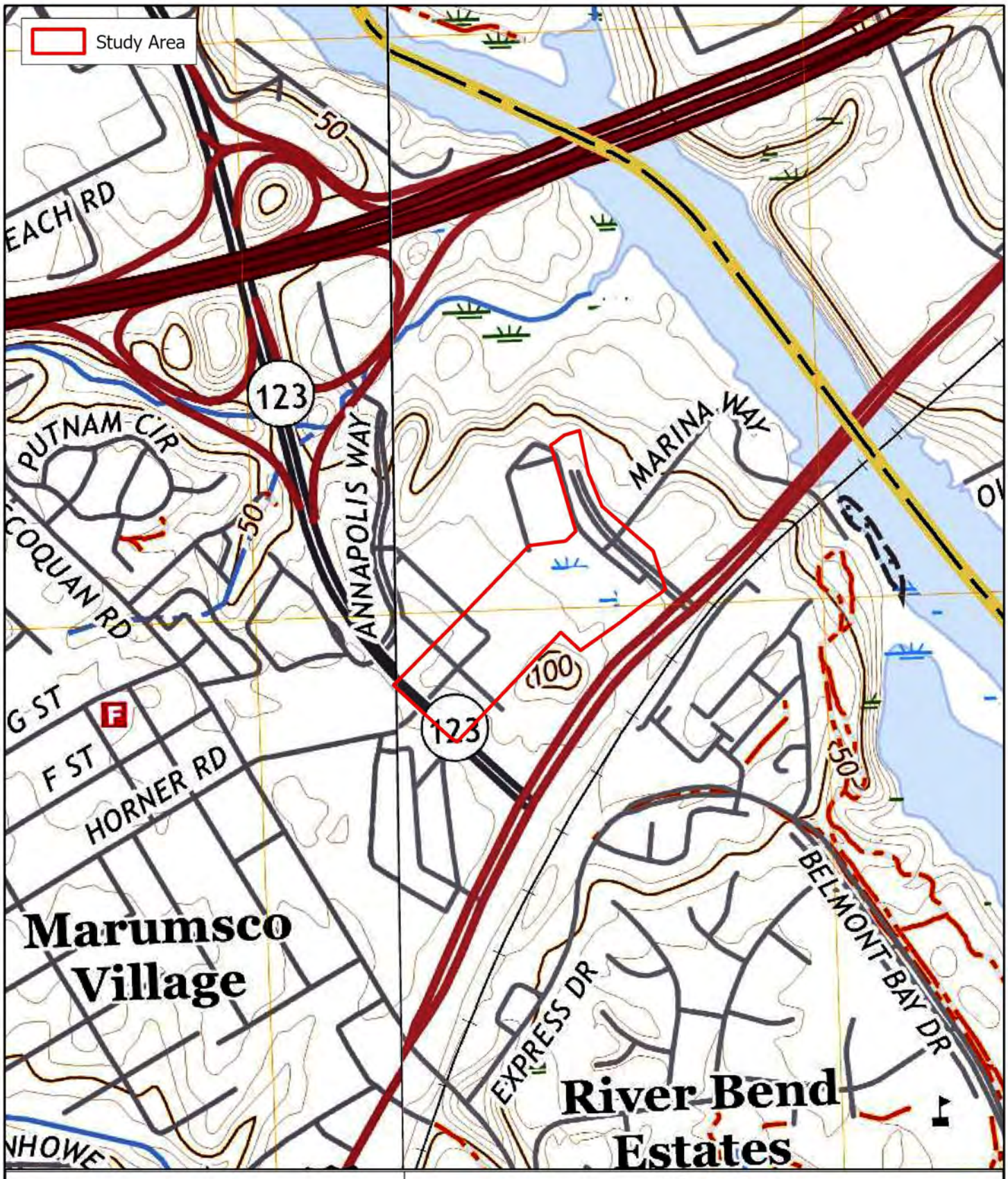
N

Sources: Hybrid Reference Layer: Esri Community Maps Contributors, County of Prince William, Fairfax County, VA, VGIN, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS
Aerial Photography Most Recent (VGIN): Virginia Geographic Information Network (VGIN)

FIGURE 1
PROJECT LOCATION
MARINA WAY EXTENSION (UPC 120778)

0 210 420
Feet

Prince William County, VA



N

Sources: USGS, 2019

FIGURE 2
USGS TOPOGRAPHIC QUADRANGLE MAP
FORT BELVOIR, VA
MARINA WAY EXTENSION (UPC 120778)

0 240 480
Feet
Prince William County, VA

N

Sources: Hybrid Reference Layer: Esri Community Maps Contributors, County of Prince William, Fairfax County, VA, VGIN, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS
Aerial Photography Most Recent (VGIN): Virginia Geographic Information Network (VGIN)

FIGURE 3
FEMA FLOOD HAZARD MAP #51153C0236E
MARINA WAY EXTENSION (UPC 120778)

0 210 420
Feet

Prince William County, VA

Sources: FWS HQ ES National Wetlands Inventory - Wetlands: U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov
World Imagery: Maxar
Hybrid Reference Layer: Esri Community Maps Contributors, County of Prince William, Fairfax County, VA, VGIN, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS
Aerial Photography Most Recent (VGIN): Virginia Geographic Information Network (VGIN)

N

0 250 500
Feet

FIGURE 4
NATIONAL WETLANDS INVENTORY MAP
MARINA WAY EXTENSION (UPC 120778)

Prince William County, VA

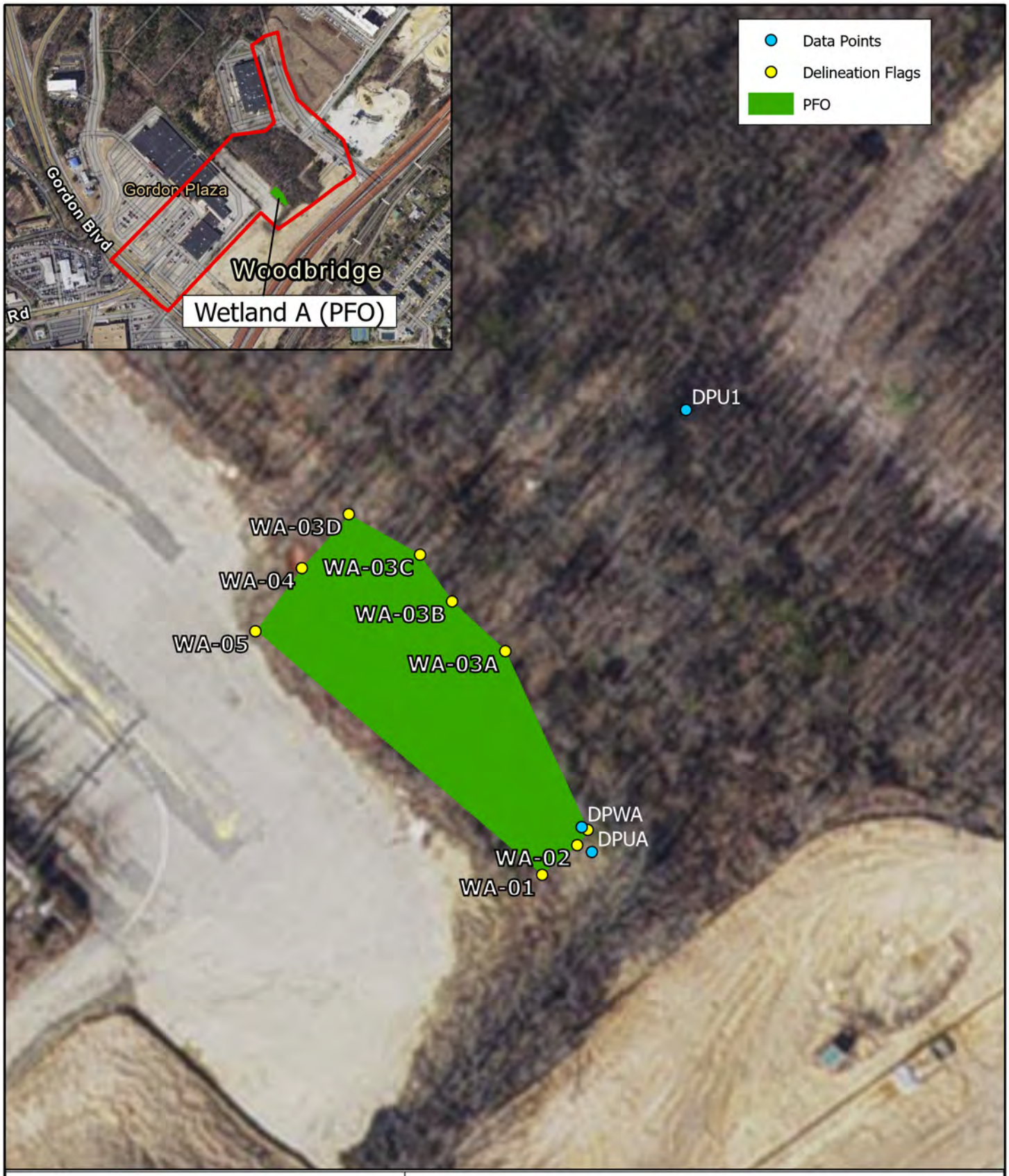
Sources: World Imagery: Maxar, Microsoft
Hybrid Reference Layer: Esri Community Maps Contributors, County of Prince William, Fairfax County, VA, VGIN, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS
Aerial Photography Map Report (VGIN), Virginia Geographic Information Network (VGIN)

N

FIGURE 5
NRCS SOIL MAP
MARINA WAY EXTENSION (UPC 120778)

0 130 260
Feet

Prince William County, VA



N

Sources: Hybrid Reference Layer: Esri Community Maps Contributors, County of Prince William, Fairfax County, VA, VGIN, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS
World Imagery: Maxar
Hybrid Reference Layer: Esri Community Maps Contributors, County of Prince William, Fairfax County, VA, VGIN, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS
Aerial Photography Most Recent (VGIN): Virginia Geographic Information Network (VGIN)

FIGURE 6
DELINEATED RESOURCE MAP
MARINA WAY EXTENSION (UPC 120778)

0 20 40
Feet

Prince William County, VA

APPENDIX C
SITE DATA SHEETS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Marina Way Extension City/County: _____ Sampling Date: 2023-06-07

Applicant/Owner: _____ State: _____ Sampling Point: DPU1

Investigator(s): AM/SS Section, Township, Range: _____

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

Subregion (LRR or MLRA): _____ Lat: 38.66515376 Long: -77.24588516 Datum: WGS 84

Soil Map Unit Name: _____ NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Area was in a drought leading up to delineation which is atypical for the area. According to NOAA, the area received 0.47 inches of precipitation in the 2 weeks prior to the site visit. Vegetation was disturbed from previous development and was not typical of that area (catalpa, bradford pear, etc.). Historic (Google Earth) photos show land disturbance and old field conditions within the last 20 years, particularly on the NE end of the site.

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 Vis ble 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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DPU1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft r)			
1. Acer rubrum	30	✔	FAC
2. Pyrus calleryana	20	✔	
3. Quercus rubra	10		FACU
4.			
5.			
6.			
	60%	= Total Cover	
50% of total cover: 30.0	20% of total cover: 12.0		
Sapling Stratum (Plot size: 30 ft r)			
1. Pyrus calleryana	15	✔	
2.			
3.			
4.			
5.			
6.			
	15%	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3.0		
Shrub Stratum (Plot size: 30 ft r)			
1. Morus alba	10	✔	FACU
2.			
3.			
4.			
5.			
6.			
	10%	= Total Cover	
50% of total cover: 5.0	20% of total cover: 2.0		
Herb Stratum (Plot size: 30 ft r)			
1. Toxicodendron radicans	20	✔	FAC
2. Leersia virginica	10	✔	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30%	= Total Cover	
50% of total cover: 15.0	20% of total cover: 6.0		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	50	x 3 =	150
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	80 (A)		250 (B)

Prevalence Index = B/A = 3.1

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 ✔

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

SOIL

Sampling Point: DPU1

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					Clay Loam	
4 - 12	10YR 4/6	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)
- ___ 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 _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Marina Way Extension City/County: _____ Sampling Date: 2023-06-07

Applicant/Owner: _____ State: _____ Sampling Point: DPUA

Investigator(s): AM/SS Section, Township, Range: _____

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

Subregion (LRR or MLRA): _____ Lat: 38.66474583 Long: -77.24600603 Datum: WGS 84

Soil Map Unit Name: _____ NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Area was in a drought leading up to delineation which is atypical for the area. According to NOAA, the area received 0.47 inches of precipitation in the 2 weeks prior to the site visit. Vegetation was disturbed from previous development and was not typical of that area (catalpa, bradford pear, etc.). Historic (Google Earth) photos show land disturbance and old field conditions within the last 20 years, particularly on the NE end of the site.

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 Vis ble 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 ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DPUA

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Catalpa speciosa	20	✔	FACU
2.			
3.			
4.			
5.			
6.			
	20%	= Total Cover	

50% of total cover: 10.0 20% of total cover: 4.0

Sapling Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

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

Shrub Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

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

Herb Stratum (Plot size: 30 ft r)			
1. Toxicodendron radicans	15	✔	FAC
2. Baccharis halimifolia	10	✔	FAC
3. Panicum sp.	5		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30%	= Total Cover	

50% of total cover: 15.0 20% of total cover: 6.0

Woody Vine Stratum (Plot size: 30 ft r)			
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: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	45 (A)		155 (B)

Prevalence Index = B/A = 3.4

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 ✔

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

SOIL

Sampling Point: DPUA

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 - 12	10YR 3/4	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)
- ___ 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 _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Marina Way Extension City/County: _____ Sampling Date: 2023-06-07

Applicant/Owner: _____ State: _____ Sampling Point: DPWA

Investigator(s): AM/SS Section, Township, Range: _____

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

Subregion (LRR or MLRA): _____ Lat: 38.66474630 Long: -77.24600443 Datum: WGS 84

Soil Map Unit Name: _____ NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Area was in a drought leading up to delineation which is atypical for the area. According to NOAA, the area received 0.47 inches of precipitation in the 2 weeks prior to the site visit.

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 Vis ble 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 _____	Depth (inches): 0
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

Ponded water observed in portion of wetland near DPWA

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DPWA

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	15	✔	FACW
2.			
3.			
4.			
5.			
6.			
	15%	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3.0

Sapling Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

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

Shrub Stratum (Plot size: 30 ft r)			
1. Phragmites australis	85	✔	FACW
2.			
3.			
4.			
5.			
6.			
	85%	= Total Cover	

50% of total cover: 42.5 20% of total cover: 17.0

Herb Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	

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

Woody Vine Stratum (Plot size: 30 ft r)			
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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✔ 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 ___

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

SOIL

Sampling Point: DPWA

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	10 YR 4/4	100					Clay loam	
4 +	10 YR 3/2	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)
- ___ 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** _____

Remarks: