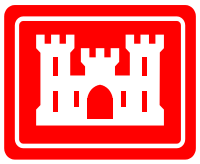
APPENDIX C:

WETLAND DELINEATION AND FOREST STAND DELINEATION REPORTS

WETLAND DELINEATION REPORT
Bureau of Engraving and Printing
Beltsville Agricultural Research Center
Traffic Mitigation
Beltsville, Maryland



Prepared for:

Bureau of Engraving and Printing
Washington, DC

Prepared by:

U.S. Army Corps of Engineers
Baltimore District, Planning Division
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Baltimore, Maryland 21201

December 2023

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1 INTRODUCTION

1.1 STUDY PURPOSE

The U.S. Army Corps of Engineers (USACE), Baltimore District, Planning Division prepared this report at the request of the United States Department of the Treasury, Bureau of Engraving and Printing (BEP), to identify and delineate waters of the U.S. (WUS) (i.e., wetlands and streams) found within the proposed site boundaries.

BEP proposes to construct and operate a new currency production facility (CPF) within the existing Beltsville Agricultural Research Center (BARC) in Prince George's County, Maryland. The new facility would replace BEP's current CPF located in Washington, D.C., with a more modern facility that meets production needs.

This report follows a 2019 wetland delineation conducted as part of the Environmental Impact Statement (EIS) for the Proposed Replacement CPF. To address traffic and utility measures identified since the EIS was completed, a supplemental Environmental Assessment (EA) is being prepared. The proposed action for this supplemental EA includes various improvements to the roadways and seven (7) intersections identified in the EIS as requiring mitigation to minimize delays and reduce queue lengths. It also includes utility infrastructure improvements required to accommodate the replacement CPF and additional improvements for the CPF that are outside of the limits of disturbance identified in the EIS. (Figure 1). In addition, current access to two wells located just east of Poultry Road would be blocked by the new CPF, so a road has been proposed to access these wells.

The study purpose was achieved through (1) collection and synthesis of existing wetlands and waters of the U.S. information; (2) a site visit to conduct routine wetland delineations as prescribed in the 1987 *Corps of Engineers Wetland Delineation Manual* and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*; and (3) preparation of a report of findings.

1.2 STUDY AREA

The study area is approximately 93 acres and is in Beltsville, Maryland. The areas described below were surveyed for the traffic mitigation action that proposes to improve the intersections as well as construct a well access road (Figure 1, Appendix A). The first project area runs along Edmonston Road beginning just north of Powder Mill Road, running south to Sunnyside Avenue, and encompasses the intersections of Edmonston Road and Powder Mill Road, Edmonston Road and Beaver Dam Road, and Edmonston Road and Sunnyside Avenue. This Edmonston Road project area amounts to approximately 32 acres. A large, forested wetland system runs along the western edge of Edmonston Road, eventually draining into Indian Creek (USFWS, 2015). BARC agricultural fields lie to the east of Edmonston Road, the Sanitary Sewer Alternative Two runs northeast through these fields, connecting to the laydown area. Another portion of the project area includes 16 acres of land along Powder Mill Road expanding north, in the vicinity of Animal Husbandry Road (Figure 6, Appendix A). This area primarily consists of mowed and maintained lawn with no previously mapped wetlands.

The third project area is a 4-acre area surrounding the intersections of Powder Mill Road and the Baltimore-Washington Parkway and Powder Mill Road and Springfield Road. This area is primarily mowed, with forest on the outskirts and no known wetlands.

The fourth project area is a 1.8-acre Sanitary Sewer Alternative One area north of Odell Road and northeast of Poultry Road. This area primarily consists of a small, forested section on the north end and mowed lawns associated with occupied housing towards the south (Figure 7, Appendix A). Eighteen (18) specimen trees were identified within traffic mitigation areas. All other specimen trees were documented outside of traffic mitigation areas.

The geology at the proposed sites consists of Lower Cretaceous sediments of the Potomac Group, which consists of the Patuxent, the Arundel, and the Patapsco Formations, respectively decreasing in age. The Patuxent and Patapsco Formations are composed primarily of sand and gravel and comprise the most prevalent water bearing aquifers in Prince George's County. The Arundel is mostly clay and creates artesian conditions in the underlying Patuxent Formation in some locations.

2 METHODS

2.1 DATA COLLECTION AND ANALYSIS

Existing wetland information and GIS data was collected from various sources for preliminary analysis and identification of potential wetland areas within the study area. Sources of data include: U.S. Geological Survey (USGS) topographic quadrangles (USGS, 1977), U.S. Department of Agriculture (USDA) web soil survey (USDA, 2011), and U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) maps (including aerial photography) (USFWS, 2015).

2.2 WETLAND DELINEATION

The wetland delineation was performed pursuant to the 1987 *Corps of Engineers Wetland Delineation Manual* and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*, as Federal and state agencies require use of these documents for jurisdictional investigations. The delineation field work was conducted April through May 2021, with additional surveys in August and September 2023. All delineations were conducted by a team from USACE, Baltimore District, Planning Division. Data points were completed for each wetland. Wetland boundaries were marked with consecutively numbered pink survey flagging. Photographs of streams and wetlands are included in Appendix C.

2.3 GLOBAL POSITIONING SYSTEM (GPS) METHODOLOGY

The field survey was completed using a Trimble TDC 150 handheld Global Positioning System (GPS). The objective of the GPS survey was to collect location data for each wetland delineation flag and soil sample point. This survey horizontally references the North American Datum of 1983 (NAD83). This data was then transferred into ArcGIS Pro 3.0.1 for analysis and mapping.

3 RESULTS

3.1 GENERAL WETLAND FINDINGS

Wetlands are defined by the presence of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Methods for determining if each of the three parameters are met are described in the 1987 *Corps of Engineers Wetland Delineation Manual* and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*.

Preliminary analysis of topographic maps, soils and NWI wetland mapping indicated the presence of wetlands and streams within the study area, specifically in the first project area along Edmonston Road. Elkton silt loam, listed as hydric on the hydric soils list (USDA, 2015) is associated with coastal plains. The Edmonston Road project area touches areas that are deemed regulatory floodways on its eastern border (Zone AE). The remaining project areas are areas of minimal flood risk (Zone X) according to the FEMA flood map (FEMA, 2020).

The USACE team placed numbered flags along the limits of six wetlands and six WUS between three project areas: Edmonston Road, Powder Mill Road and Animal Husband Road Area, and the Sanitary Sewer Alternative 1/Odell Road area. No wetlands were identified in the project area at Powder Mill Road and the Baltimore-Washington Parkway. The flags were located using GPS survey methods. The wetland areas within LODs amount to over 13 acres of wetlands (Tables 3-2 and 3-3, Section 3.2). Wetland 1 was not delineated in its entirety. The wetland extended well beyond the limit of disturbance (LOD) bordering the intersection; therefore, solely the edge of the wetland bordering the road was delineated. The edge furthest away from the road was not delineated. The map of wetlands delineated at the proposed traffic mitigation and well access sites are shown in Figures 5, 6, and 7 in Appendix A.

3.1.1 VEGETATION

For purposes of wetland identification, many plants are assigned an indicator status by the USFWS, which is useful for determining the probability of their occurrence in wetlands. Wetlands delineated within the study area were dominated by plants normally expected to occur within wetlands. No plant species observed on the site are listed as rare, threatened, or endangered at either a Federal or state level.

3.1.2 GENERAL SOIL CHARACTERISTICS

The USDA web soil survey (USDA, 2015) identifies 15 soil series within the study area, which are shown in Table 3-1 (see Figures 2,3 and 4 in Appendix A). The table lists the soil name, the drainage class, and hydric status.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils,

under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Drainage class refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained.

Table 3-1. Soils at BEP Traffic Mitigation Sites

Soil Name	Map Symbol	Drainage Class	Hydric	Parcel Present
Christiana-Downer complex, 10 to 15 percent slopes	CcD	Moderately well drained	No	2,4
Christiana-Downer complex, 5 to 10 percent slopes	CcC	Moderately well drained	No	1,2,3,4
Christiana-Downer-Urban land complex, 15 to 25 percent slopes	CdE	Moderately well drained	No	2
Christiana-Downer-Urban land complex, 5 to 15 percent slopes	CdD	Moderately well drained	No	2
Elkton silk loam, 0 to 2 percent slopes	EkA	Poorly Drained	Yes	4
Fallsington sandy loams, 0 to 2 percent slopes, Northern Coastal Plain	FaaA	Poorly drained	Yes	3
Hammonton loamy sand, 0 to 2 percent slopes	HaA	Moderately well drained	No	1
Longmarsh and Indiantown soils, frequently flooded	LY	Very poorly drained	Yes	3
Russett-Christiana complex, 0 to 2 percent slopes	RcA	Moderately well drained	No	1,3,4
Russett-Christiana complex, 2 to 5 percent slopes	RcB	Moderately well drained	No	1,2,3,4
Russett-Christiana Urban land complex, 0 to 5 percent slopes	RuB	Moderately well drained	No	1,2,3,4
Sassafras-Urban land complex, 5 to 15 percent slopes	SnD	Well drained	No	1
Udorthents, highway, 0 to 65 percent slopes	UdaF	Well drained	No	3
Udorthents, reclaimed gravel pits, 0 to 5 percent slopes	UdgB	Well drained	No	1
Zekiah and Issue soils, frequently flooded	ZS	Poorly drained	Yes	1

3.1.3 HYDROLOGY

Evidence of wetland hydrology was observed in the areas identified as wetlands during the site investigation, and included water-stained leaves, algal matt or crust, oxidized rhizospheres along living roots, surface water, saturation, sparsely vegetated concave surface, and inundation visible on aerial imagery.

3.2 STREAMS

The dominant hydrologic feature is Indian Creek, which flows south through Wetland 1, following alongside Edmonston Road. The creek is not within the LOD but runs through Wetland 1 and effects the hydrology of the wetland. Indian Creek eventually flows into the Anacostia River, then the Potomac River, and finally the Chesapeake Bay. It is classified as a riverine lower perennial with an unconsolidated bottom of cobble/gravel and sand (R2UB1/2). The northernmost intermittent stream (WUS-1) flows south through Wetland 3, under Powder Mill Road and into Wetland 1. It is classified as a riverine intermittent streambed with a cobble-gravel/sand bottom (R4SB3/4). There is also a culvert with intermittent water on the northeast corner of the Edmonston Road and Powder Mill Road intersection that flows under the intersection, splitting into two streams, directing water to the northwest corner of the intersection (creating Wetland 2) and to the

southwest corner (creating WUS-3). WUS-2 drains southwest from Wetland 2 underneath Powder Mill Road and into Wetland 1. It is classified as a riverine intermittent streambed with a sand/mud bottom (R4SB4/5). WUS-3 drains from the northeast section of the Edmonston Road and Powder Mill Road intersection flowing southwest and into Wetland 1. It is classified as a riverine intermittent streambed with a sand/mud bottom (R4SB4/5). WUS-4 is found on the well access site near Poultry Road and Powder Mill Road. The delineated portion for this report flows west into an off-site 2019 delineated intermittent stream. WUS-4 is classified as a riverine intermittent streambed with a sand/mud bottom (R4SB4/5). WUS-5 and WUS-6 are classified as riverine lower perennial with unconsolidated bottoms of cobble/gravel and sand (R2UB1/2). These are found in the Sanitary Sewer Alternative 1/Odell Road area. WUS-6 flows originates off-site and flows east to west, eventually into Indian Creek. WUS-5 flows north to east, flowing into WUS-6.

Descriptions are provided in Table 3.2.

Table 3-2. Streams at BEP Traffic Mitigation Sites

Stream Reach	Classification	Linear Feet (LF) within the site	Average Width (feet)	Connection to Navigable Waters
WUS-1	R4SB3/4	208	8	Flows to Indian Creek, Anacostia River, Potomac River to Chesapeake Bay
WUS-2	R4SB4/5	360	3-4	Flows to Indian Creek, Anacostia River, Potomac River to Chesapeake Bay
WUS-3	R4SB4/5	110	5-6	Flows to Indian Creek, Anacostia River, Potomac River to Chesapeake Bay
WUS-4	R4SB4/5	130	3-4	Flows to the Anacostia River, Potomac River to Chesapeake Bay
WUS-5	R2UB1/2	163	3-4	Flows to WUS-6
WUS-6	R2UB1/2	177	3-4	Flows to Indian Creek
Indian Creek	R2UB1/2	N/A	15	Flows to Anacostia River, Potomac River to Chesapeake Bay
	Total	**1,148 LF**		

3.3 WETLANDS

Eight (8) wetlands were delineated within the proposed project areas, amounting to approximately 14 acres. Wetland 6 has been removed from the delineation and mapping because it is no longer located within the proposed LOD and so is not included in the acreage total. Wetland data forms are in Appendix B.

Plants found in and around the wetlands are classified by a regional wetland indicator status based on USDA's National Wetland Plant List. Indicator categories found in the wetlands on this site include:

FAC: Facultative Hydrophyte - Sometimes found in wetlands (34-66% frequency)
FACW: Facultative Wet Hydrophyte - Usually found in wetlands (66-99% frequency)
OBL: Obligate Hydrophyte - Almost always found in wetlands (99+% frequency)
NI: No Indicator – USDA has not assigned an indicator status for the species

Wetland 1 is a large, forested wetland that extends beyond the LOD of this project to the southwest. The edge of the wetland bordering Edmonston Road and some of Sunnyside Avenue and Powder Mill Road was delineated. The borders outside the LOD were not delineated; the westernmost border in Figure 5 was estimated for mapping purposes. The wetland may extend beyond this estimated western border. The larger wetland system flows south into Indian Creek, spanning over 100 acres total. It is classified as a palustrine forested wetland with broad-leaved deciduous vegetation and a seasonally flooded/saturated water regime (PFO1E). The larger wetland system contains other classifications; however, these are beyond the LOD of this study. Dominant vegetation includes blackgum (*Nyssa sylvatica*) and red maple (*Acer rubrum*) in the canopy, beech (*Fagus grandifolia*), blackgum, white oak (Q*uercus alba*), white fringe tree (*Chionanthus virginicus*), American holly (*Ilex verticillata*), and Tatarian honeysuckle (*Lonicera tatarica*) in the understory, and Japanese stiltgrass (*Microstegium vimineum*), common greenbrier (*Smilax rotundifolia*), Virginia creeper (*Parthenocissus quinquefolia*), and Japanese honeysuckle (*Lonicera japonica*) in the herbaceous layer. The soil matrix was predominantly a sandy loam with a 10YR 2/2 color and redoximorphic concentrations in the matrix of 10YR 6/2 and 7.5YR 5/6. This chroma meets a depleted matrix hydric soil indicator.

Wetland 2 is classified as an excavated palustrine emergent wetland with persistent vegetation and a temporary flooded water regime (PEM1Ax). The dominant vegetation observed included red maple, tulip poplar (*Liriodendron tulipifera*), southern arrowwood (*Viburnum dentatum*), Tatarian honeysuckle, poison ivy (*Toxicodendron radicans*), fox grape (*Vitis labrusca*), and Virginia creeper. The soil matrix was a silt loam 10YR 4/2 with 2.5YR 5/4 redoximorphic features. This soil matrix met the depleted matrix hydric soil indicator.

Wetland 3 is classified as a palustrine forested wetland with broad-leaved deciduous vegetation and a seasonally flooded/saturated water regime (PFO1E). Wetland 3 drains into Wetland 1 via a culvert under Powder Mill Road. The dominant canopy species observed were red maple and pin oak (*Quercus palustris*). Dominant understory vegetation observed was red maple, sycamore (*Platanus occidentalis*), northern spicebush (*Lindera benzoin*), blackhaw (*Viburnum prunifolium*), creeping bent grass (*Agrostis stolonifera*), and common greenbrier. The soil matrix was primarily a 10 YR4/2 fine sandy loam with 7.5YR 4/4 redoximorphic features. The matrix meets the hydric soil indicator for a depleted matrix.

Wetland 4 is classified as a palustrine forested wetland with broad-leaved deciduous vegetation and a seasonally flooded/saturated water regime (PFO1E). Water from Wetland 4 drains west into Wetland 3 under a culvert, which then drains to Wetland 1. The dominant canopy species observed were willow oak (*Quercus phellos*), and red maple. The dominant understory vegetation consists of tulip poplar, sweetbay magnolia (*Magnolia virginiana*), creeping bentgrass, poison ivy, and common greenbrier. The soil matrix was predominantly a 10YR 4/2 sandy clay loam with redoximorphic features of 7.5YR 4/6 which meets the hydric soil criteria for a depleted matrix.

Wetland 5 is classified as a palustrine forested wetland with broad-leaved deciduous vegetation and a seasonally flooded/saturated water regime (PFO1E). Wetland 5 drains into Indian Creek. The canopy dominant species observed were beech and willow oak. The dominant understory species observed were ironwood (*Carpinus caroliniana*), northern spicebush, and skunk cabbage (*Symplocarpus foetidus*). The soil matrix was primarily a sandy clay loam with a 10YR 5/1 color

with redoximorphic features of 7.5YR 4/6. These colors meet the hydric soil depleted matrix indicator.

Wetland 6 – Removed, No longer located within proposed LOD.

Wetland 7 is classified as a palustrine emergent wetland with persistent vegetation and a seasonally flooded/saturated water regime (PEM1E). The dominant vegetation observed was creeping bentgrass (*Agrostis stolonifera*) and reed canary grass (*Phalaris arundinacea*). The soil matrix was predominantly a 10YR 4/2 fine sandy loam with 7.5YR 4/6 redoximorphic features in the pore linings. These soils met the depleted matrix hydric soil indicator.

Wetland 8 is classified as a palustrine emergent wetland with persistent vegetation and a seasonally flooded/saturated water regime (PEM1E). The dominant vegetation observed was broad-leaved cattail (*Typha latifolia*) and soft rush (*Juncus effusus*). A few bald cypress (*Taxiodum distichum*) were growing on the perimeter. The soil matrix was predominantly a 10YR 4/2 sandy loam with 10YR 4/3 redoximorphic features. These soils met the depleted matrix hydric soil indicator.

Descriptions of each wetland are provided in Table 3.3. A Cowardin classification key can be found in Appendix D.

Table 3-3. Wetlands at BEP Traffic Mitigation Sites

Wetland	Cowardin Classification	Total Acreage	Data Point	Connection to Navigable Waters
Wetland 1	PFO1E	9.8	DP-107 and 113	Drains to Indian Creek
Wetland 2	PEM1Ax	0.07	DP-111	Northwest corner of Edmonston and Powder Mill intersection. Drains southwest to Wetland 1 via WUS-3.
Wetland 3	PFO1E	0.36	DP-110	Just west of Wetland 4, north of Powder Mill Road. Drains south to Wetland 1 via WUS-1
Wetland 4	PFO1E	0.04	DP-105	Centered between Wetland 3 and 2. Drains west to Wetland 3
Wetland 5	PFO1E	3.24	DP-108	Southern portion of Traffic Mitigation Site, drains to Indian Creek
Wetland 6	**Removed - No longer located within the proposed LOD**			
Wetland 7	PEM1E	0.14	DP-8	Drains to WUS-4
Wetland 8	PEM1E	0.05	DP-10	Drains to WUS-4
	Total	**13.70 Acres**		

4 CONCLUSIONS

Eight (8) wetlands and six (6) stream reaches were delineated by USACE, Baltimore District, Planning Division, within the proposed boundary of BEP traffic mitigation sites along Powder Mill Road, Odell Road, and Edmonston Road in Beltsville, Maryland. The delineation was performed April through May 2021, with additional surveys in August and September 2023. Wetland 6 has since been removed due changes in the proposed LOD.

The jurisdiction of the wetlands included in this report have not been verified by USACE-Regulatory Branch or Maryland Department of the Environment (MDE). Any future design or construction that may impact these wetlands or the wetland buffers will require coordination with the USACE and MDE, specifically regarding potential permitting actions within Section 404, Section 10, and all other potential permitting actions.

5 REFERENCES

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6 ACRONYMS AND ABBREVIATIONS

BARC	Beltsville Agricultural Research Center
BEP	Bureau of Engraving and Printing
CPF	Currency Production Facility
EIS	Environmental Impact Statement
FAC	Facultative Hydrophyte
FACW	Facultative Wet Hydrophyte
GPS	Global Positioning System
LOD	Limit of Disturbance
MDE	Maryland Department of the Environment
NAD83	North American Datum of 1983
NI	No Indicator
NTCHS	National Technical Committee for Hydric Soils
NWI	National Wetland Inventory
OBL	Obligate Hydrophyte
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
WUS	Waters of the U.S.

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APPENDIX A
Figures

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BEP Traffic and Utility Mitigation Vicinity Map 2023

Traffic Improvements

Sanitary Sewer Alternative 1

Sanitary Sewer Alternative 2

Utility Work

BEP Boundary

CPF Improvements

N

0 0.3 Miles

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BEP Traffic and Utility Mitigation Soils Map (East) 2023

Legend

Limit of Disturbance

Layer

Soil Type

BaA, BaB, BaC, BuB, CaB, CcC, CcD, CcE, CdD, CdE, CrC, CrD, CzD, DoB, DoC, DoD, DuB, EkA, EwB, EwD, FaaA, GbD, HaA, LY, MIS, MpB, RcA, RcB, RuB, SOD, SaaB, SaaC, ScC, SnB, SnD, UdaF, UdbB, UdbD, UdbE, UdcB, UdgB, UrcD, UrrB, W, WdaB, ZS

N

0 0.2 Miles

BEP Traffic and Utility Mitigation Soils Map (North/Northwest) 2023

Legend

Limit of Disturbance

Layer

Soil Type

BuB, CcC, CcD, CcE, CdD, CdE, DoB, DoC, DoD, EkA, EwB, EwC, FaaA, GbD, RcA, RcB, RuB, ScC, SnB, UdbB, UdgB, UrcD, UrrB, UrsB, UrzA, ZS, Zn

N

0 0.12 Miles

BEP Traffic and Utility Mitigation Soils Map (Southwest) 2023

Legend

- Limit of Disturbance
- Layer
- Soil Type
- CcC
- CcD
- CcE
- CdD
- CdE
- DoB
- DoC
- EkA
- HaA
- LY
- MIS
- RcA
- RcB
- RuB
- SnD
- UdbB
- UdcB
- UdgB
- UrrB
- UrsB
- UrzA
- W
- WdaB
- ZS

N

0 0.12 Miles

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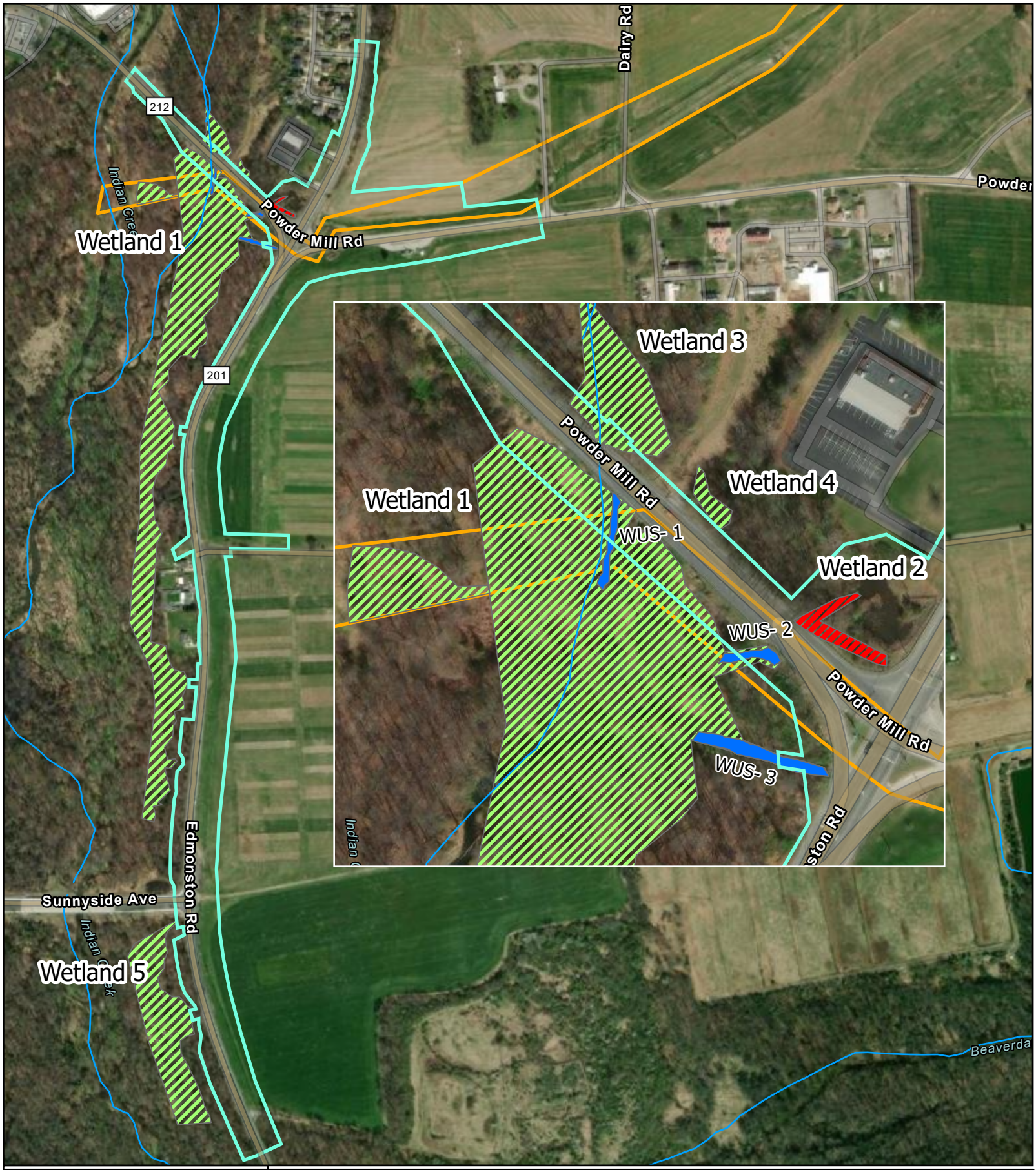

BEP Traffic and Utility Mitigation Wetlands 2023

N

0 262.5 525

US Feet

Traffic Improvements

Sanitary Sewer Alternative 2

Waters of the US

Intermittent Stream

Maryland Waterbodies

Wetland Type

PEM1Ax

PFO1A

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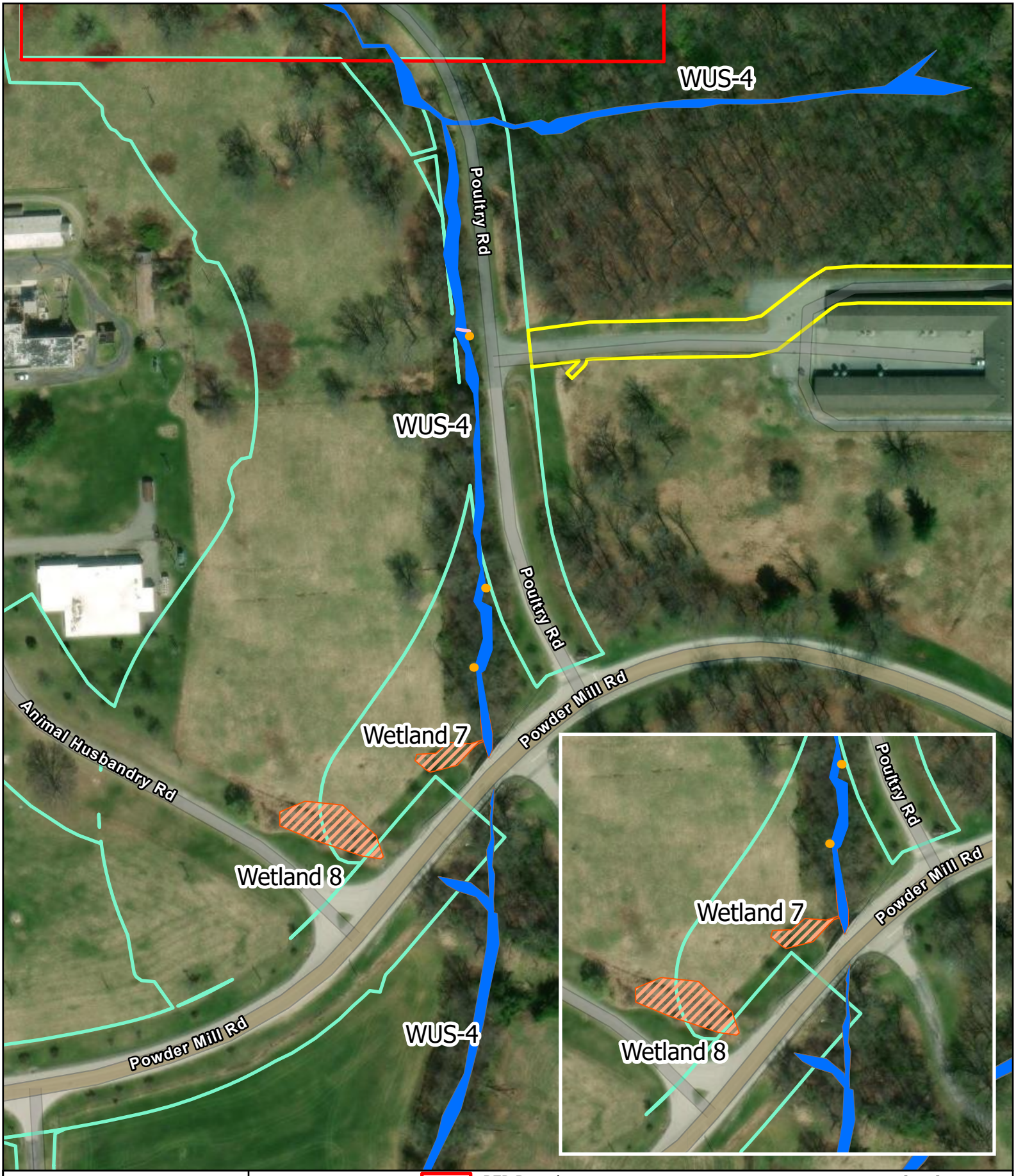

BEP Traffic and Utility Mitigation Wetlands 2023

N

0 75 150 US Feet

BEP Boundary

CPF Improvements

Well Access Road

Waters of the US

Intermittent Stream

Outfall

Wetland Type

PEM1E

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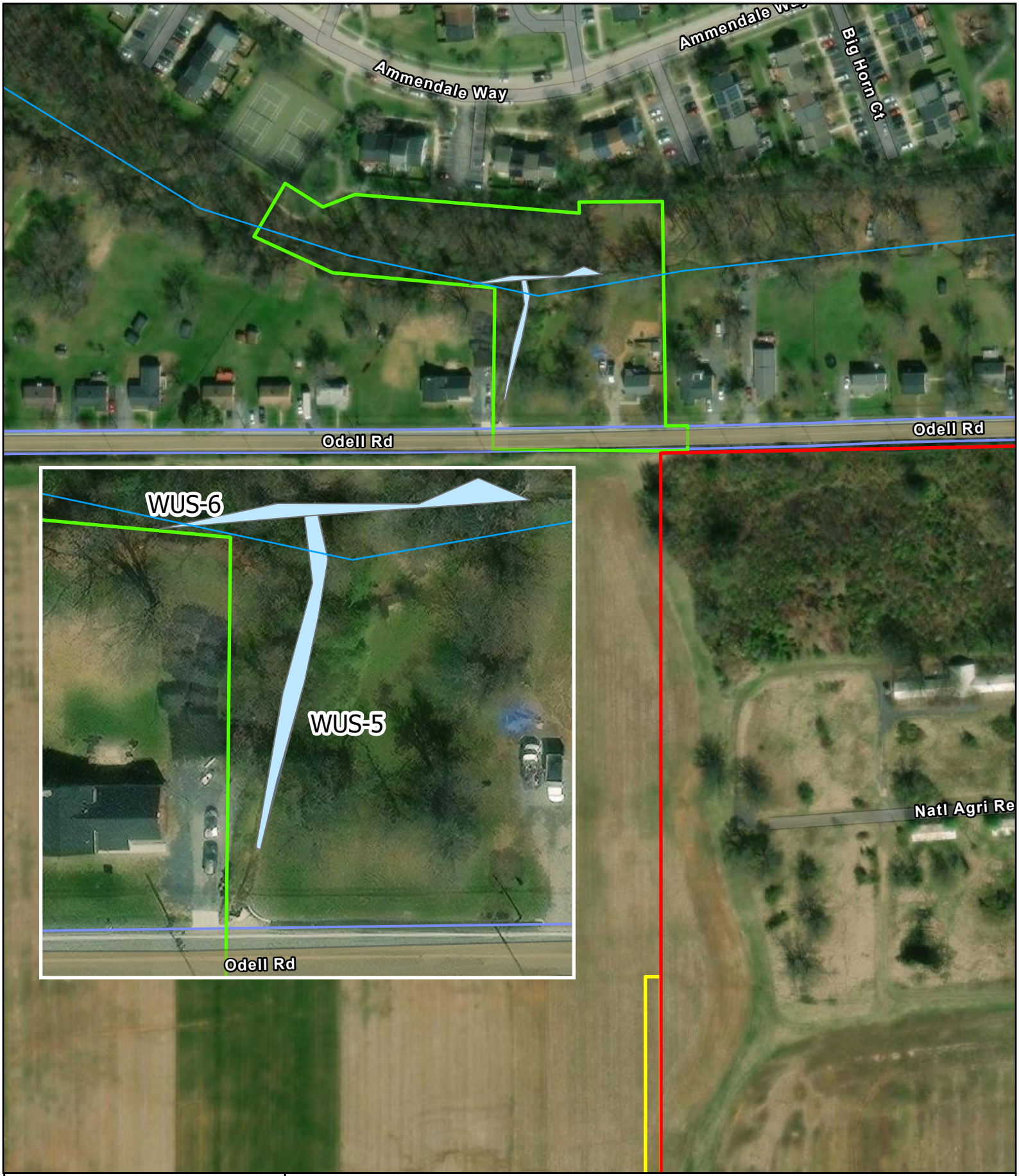

BEP Traffic and Utility Mitigation Streams 2023

N

0 75 150 US Feet

- BEP Boundary
- Utility Work
- Sanitary Sewer Alternative 1
- Bio-Swale Maintenance Access

Waters of the US

- Perennial Stream
- Maryland Waterbodies

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APPENDIX B
Routine Wetland Data Forms

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation City/County: Prince George's Sampling Date: 04/05/2021

Applicant/Owner: BARC State: MD Sampling Point: 100

Investigator(s): DRC/LEJ Section, Township, Range:

Landform (hillslope, terrace, etc.): East Pasture Local relief (concave, convex, none): Flat Slope (%): 1-3

Subregion (LRR or MLRA): LRR R Lat: 39.033235 Long: -76.877983 Datum: NAD83

Soil Map Unit Name: Christiana and Downer NWI classification: UPL

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

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks:

Isolated area on bench above unnamed tributary to Beaver Dam Creek

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ 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)
- 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)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1-2”

Water Table Present? Yes ____ No X Depth (inches): ____

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:

Surface water perched on compacted subsoil

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

Sampling Point: **100**

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1. *Juncus effusus*	25	Y	OBl
2. *Phalaris arundinacea*	15	Y	FACW
3. *Typha latifolia*	5	N	OBL
4. *Periscaria pensylvanica*	5	N	FACW
5.			
6.			
	50	= Total Cover	
50% of total cover:	25	20% of total cover:	10

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
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: 20-foot radius plot)			
1.			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

	1 - Rapid Test for Hydrophytic Vegetation
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.

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

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

SOIL Sampling Point: **100**

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
0-2	10YR 4/3	100					Clay loam	
2-10	10YR 5/4	70	10YR 2/1	10	C	M	Clay loam	
			7.5 YR 5/8	10	C	M		

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 Floodplains 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:

Soil is highly compacted and appears to be partially fill material with high clay content

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation City/County: Prince George's Sampling Date: 04/15/2021

Applicant/Owner: BARC State: MD Sampling Point: 101

Investigator(s): DRC/LEJ Section, Township, Range:

Landform (hillslope, terrace, etc.): Slight slope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR R Lat: 39.034162 Long: -76.877966 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer 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 ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:
Connected to wetland area north of Powder Mill RD., continues east beyond fence

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ 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)
- X 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)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	2”	
Water Table Present?	Yes ___	No X	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	1.5”	**Wetland Hydrology Present?** **Yes X** **No**

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

Remarks:

Depressional area in field

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

Sampling Point:101

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Juncus effusus*	30	Y	OBL
Phalaris arundinacea			
2.	15	Y	FACW
3.			
4.			
5.			
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: 20-foot radius plot)			
1.			
2.			
3.			
		= 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		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 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.

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

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

SOIL Sampling Point: **101**

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
0-2”	10YR 5/3	100					Clay loam	
2-10”	10YR 5/3	75	10YR 2/1	10	C	M	Clay loam	
			10YR 5/8	5	C	M		

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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)
- 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 Floodplains 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:

Possible fill with high clay content

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BARC Traffic Mitigation City/County: Prince George's Sampling Date: 04/12/2021

Applicant/Owner: BARC State: MD Sampling Point: DP-102

Investigator(s): DRC/LEJ Section, Township, Range:

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

Subregion (LRR or MLRA): LRR R Lat: 39.033899 Long: -76.877483 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer 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 ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ 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)
- X 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 X No ___ Depth (inches): 0.5”

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

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

Remarks:

Just rained, bottom of hillslope in large wetland area
Wetland continues under fence

Sampling Point:
102

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

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)				
1.	*Phalaris arundinacea*	40	Y	OBL
2.	*Juncus effusus*	15	N	OBL
3.	*Agrostis stolonifera*	60	Y	FACW
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		115	= Total Cover	
50% of total cover:		57.5	20% of total cover:	23.3

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

	1 - Rapid Test for Hydrophytic Vegetation
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.

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

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

SOIL Sampling Point: **102**

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
0-2”	10 YR 3/2	100					loam	
2-6”	10YR 4/2	70	10YR 4/6	30	C	PL	Fine sandy loam	
6-12”	10YR 5/3	60	10YR 2/1	40	C	PL	Sandy clay loam	Gravel present

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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)
- 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 Floodplains 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:

Wet soils, just rained

Some gravel in bottom layer

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BARC Traffic Mitigation City/County: Prince George's Sampling Date: 04/12/2021

Applicant/Owner: BARC State: Md Sampling Point: DP-103

Investigator(s): LEJ/DRC Section, Township, Range:

Landform (hillslope, terrace, etc.): hillside Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR R Lat: 39.033727, Long: -76.877031 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer NWI classification: UPL

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

Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes	No X	**within a Wetland?**	**Yes** **No X**
Wetland Hydrology Present?	Yes X	No		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres 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 X** **No ___**

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

Remarks:
Recent rainfall, just uphill of DP-103. Hill goes up to toward buildings just north of Powder Mill

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

Sampling Point: **103**

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Festuca pratensis*	70	Y	FACUP
2. *Agrostis stolonifera*	20	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
50% of total cover:	45	20% of total cover:	18

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= 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		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

	1 - Rapid Test for Hydrophytic Vegetation
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.

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

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

SOIL Sampling Point: **103**

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
0-6”	10YR 4/3	100					loam	
6-8”	10YR 4/4						loam	
7-12”	7.5YR 4/4						Loam	Small gravel

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 Floodplains 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:

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BARC Traffic Mitigation City/County: Prince George's Sampling Date: 05/11/21

Applicant/Owner: BARC State: MD Sampling Point: DP-104

Investigator(s): LEJ/DRC Section, Township, Range:

Landform (hillslope, terrace, etc.): Roadside floodplain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR R Lat: 39.032911 Long: -76.901474 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer NWI classification: UPL

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

Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes	No X	**within a Wetland?**	**Yes** **No X**
Wetland Hydrology Present?	Yes	No X		

Remarks:
East of powder mill
Some wetland plants, but not soils.
Outskirts of floodplain

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: **104**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	10	Y	FACU
2. *Acer rubrum*	10	Y	FAC
3. *Liriodenderon tulipifera*	15	Y	FACU
4. *Quercus palustris*	10	Y	FACW
5. *Fraxinus pennsylvanica*	5	N	FACW
6.			
	50	= Total Cover	
50% of total cover:	25	20% of total cover:	10

Sapling Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1. *Viburnum dentatum*	25	Y	FAC
2. *Lindera benzoin*	25	Y	FACW
3. *Corylus americana*	5	N	FACU
4.			
5.			
6.			
	55	= Total Cover	
50% of total cover:	27.5	20% of total cover:	11

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Microstegium vimineum*	30	Y	FAC
2. *Cinna arundinacea*	10	Y	FACW
3. *Impatiens capensis*	5	N	FACW
4.			
5.			
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: 20-foot radius plot)			
1. Parthenocissus quinquefolia	30	Y	FACU
2. Lonicera japonica	15	Y	FACU
3. *Toxicodendron radicans*	20	Y	FACU
	65	= Total Cover	
50% of total cover:	32.5	20% of total cover:	13

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 55 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

	1 - Rapid Test for Hydrophytic Vegetation
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.

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

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

SOIL Sampling Point: **104**

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 5/3						loam	
3-10”	10YR 4/3	70	10YR 4/4	30	C	M	loam	
10-12”	10YR 5/4	70	10YR 4/6	30	C	M	loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 Floodplains 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:

Soil very dry
Light soil

Wetland 3 UPL point

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BARC Traffic Mitigation City/County: Prince George's Sampling Date: 05/12/21

Applicant/Owner: BARC State: MD Sampling Point: DP-105

Investigator(s): LEJ/DRC Section, Township, Range:

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

Subregion (LRR or MLRA): LRR R Lat: 39.032261 Long: -76.900463 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer NWI classification: PEM/FO

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

Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

Data point for Wetland 4 (TS W4-1)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X 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)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

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

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No 0" Depth (inches): ___

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

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

Remarks:

Wetland 4 drains west to Wetland 3 under gravel road through 24" CMP , which drains to Wetland 1 to Indiana Creek

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

Sampling Point: **105**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus phellos*	25	Y	FACW
2. *Acer rubrum*	20	Y	FAC
3.			
4.			
5.			
6.			
	55	= Total Cover	
50% of total cover:	27.5	20% of total cover:	11

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Liquidamabar styracifula*	15	Y	FAC
2. *Magnolia virginiana*	10	Y	FACW
3. *Viburnum dentatum*	6	N	FAC
4.			
5.			
6.			
	36	= Total Cover	
50% of total cover:	15.5	20% of total cover:	7.2

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Dichanthelium clandestinum*	5	N	FACW
2. *Carex frankii*	5	N	OBL
3. *Juncus effusus*	10	N	OBL
4. *Agrostis stolonifera*	35	Y	FACW
5. *Carex scoparia*	15	N	FACW
6. *Toxicodendron radicans*	15	N	FAC
7.			
8.			
9.			
10.			
11.			
	85	= Total Cover	
50% of total cover:	42.5	20% of total cover:	17

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. *Smilax rotundilfolia*	10	Y	FAC
2.			
3.			
	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: 6 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

	1 - Rapid Test for Hydrophytic Vegetation
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.

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

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

SOIL Sampling Point: **105**

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
0-1”	10YR 2/1	100					Sandy loam	High fibric organic content
1-3”	10YR 3/2	80	5YR 3/4	20	C	PL	loam	
3-10”	10YR 4/2	60	7.5YR 4/6	40	C	M	Fine sandy loam	
10-12”	10YR 5/4	70	10 YR 5/6	30	C	M	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:

- ___ 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)
- 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 Floodplains 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:

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BARC Traffic Mitigation City/County: Prince George's Sampling Date: 05/12/21

Applicant/Owner: BARC State: MD Sampling Point: DP-106

Investigator(s): LEJ/DRC Section, Township, Range:

Landform (hillslope, terrace, etc.): Roadside floodplain Local relief (concave, convex, none): Flat Slope (%): 1

Subregion (LRR or MLRA): LRR R Lat: 39.032214 Long: -76.900222 Datum: NAD83

Soil Map Unit Name: Christiana and Downer NWI classification: UPL

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

Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes	No X	**within a Wetland?**	**Yes** **No X**
Wetland Hydrology Present?	Yes	No X		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres 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.

Cer **107A**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2. *Quercus phellos*	20	Y	FACW
3. *Nyssa sylvatica*	10	N	FAC
4.			
5.			
6.			
	70	= Total Cover	
50% of total cover:	45	20% of total cover:	14

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Fagus grandifolia*	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
	15	= Total Cover	
50% of total cover:	7.5	20% of total cover:	3

Shrub Stratum (Plot Size: 20-foot radius plot)			
1. *Viburnum dentatum*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover:	5	20% of total cover:	2

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Catharanthus roseus*	50	Y	UPL
2.			
3.			
4.			
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: 20-foot radius plot)			
1. *Toxicodendron radicans*	15	Y	FAC
2. *Smilax rotundifolia*	35	Y	FAC
3. *Lonicera japonica*	10	N	FACU
4. *Parthenocissus quinquefolia*	7	N	FACU
	67	= Total Cover	
50% of total cover:	33.5	20% of total cover:	13.4

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 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.

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

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

SOIL Sampling Point: **106**

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
0-5	10 YR 3/2						loam	
5-12	10YR 4/4	80	10YR 4/6	20	C	M	Fine sandy loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 Floodplains 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:

East of point 106 near wet 4

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BARC Traffic Mitigation City/County: Prince George's Sampling Date: 05/12/21

Applicant/Owner: BARC State: MD Sampling Point: DP-107

Investigator(s): DRC/LEJ Section, Township, Range:

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

Subregion (LRR or MLRA): LRR R Lat: 39.024984 Long: -76.901455 Datum: NAD83

Soil Map Unit Name: Christiana and Downer 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 ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? **Yes X** **No**

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)
- 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)
- ___ 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 X** **No**

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

Remarks:

Wetland 1
Open area along Edmonston
Very sandy and dark soils

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

Sampling Point: **107**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Nyssa sylvatica*	20	Y	FAC
2. *Acer rubrum*	30	Y	FAC
3. *Quercus alba*	10	N	FACU
4. *Magnolia virginiana*	5	N	FACW
5. *Liquidambar styraciflua*	10	N	FAC
6.			
	75	= Total Cover	
50% of total cover:	37.5	20% of total cover:	15

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Fagus grandifolia*	10	Y	FACU
2. *Nyssa sylvatica*	5	Y	FAC
3. *Quercus alba*	5	Y	FACU
4. *Chionanthus virginicus*	5	Y	FACU
5.			
6.			
	25	= Total Cover	
50% of total cover:	12.5	20% of total cover:	5

Shrub Stratum (Plot Size: 20-foot radius plot)			
1. *Ilex verticillata*	20	Y	FACW
2. *Lonicera tartarica*	5	Y	FACU
3.			
4.			
5.			
6.			
	25	= Total Cover	
50% of total cover:	12.5	20% of total cover:	5

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Microstegium vinimeum*	35	Y	FAC
2. *Arisaema triphyllum*	10	N	FACW
3. *Toxicodendron radicans*	5	N	FAC
4. *Podophyllum peltatum*	8	N	FACU
5. *Rubus allegheniensis*	5	N	UPL
6. *Onoclea sensibilis*	10	N	FACW
7.			
8.			
9.			
10.			
11.			
	73	= Total Cover	
50% of total cover:	36.5	20% of total cover:	14.6

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. *Smilax rotundifolia*	10	Y	FAC
2. *Parthenocissus quinquefolia*	10	Y	FACU
3. *Lonicera japonica*	10	Y	FACU
	30	= Total Cover	
50% of total cover:	15	20% of total cover:	6

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 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.

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

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

SOIL Sampling Point: **107**

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
1-3”	10YR 2/1						Sandy loam	
4-7”	10YR 2/2	70	10YR 5/3	30	C	M	Sandy loam	
7-12	10YR 2/2	50	7.5 YR 5/6	20	C	M	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:

- ___ 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)
- 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 Floodplains 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:

More sand further down
Much lighter matrix at bottom

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation City/County: Prince George's Sampling Date: 05/12-21

Applicant/Owner: BARC State: MD Sampling Point: DP-108

Investigator(s): DRC/LEJ Section, Township, Range:

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

Subregion (LRR or MLRA): LRR R Lat: 39.021828 Long: -76.901856 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer 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**
Hydric Soil Present?	Yes	X	No		**within a Wetland?** **Yes** **X** **No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:

Wetland 5

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)
- ___ 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** **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: **108**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	25	Y	FACU
2. *Quercus phellos*	20	Y	FACW
3.			
4.			
5.			
6.			
	55	= Total Cover	
50% of total cover:	27.5	20% of total cover:	11

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Carpinus caroliniana*	30	Y	FAC
2. *Lindera benzoin*	10	Y	FACW
3.			
4.			
5.			
6.			
	40	= Total Cover	
50% of total cover:	20	20% of total cover:	8

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Symplocarpus foetidus*	70	Y	OBL
2. *Lindera benzoin*	10	N	FACW
3. *Impatiens capensis*	20	N	FACW
4. *MIcrostegium vinimeum*	10	N	FAC
5. *Geum canadense*	15	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	125	= Total Cover	
50% of total cover:	62.5	20% of total cover:	25

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

	1 - Rapid Test for Hydrophytic Vegetation
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.

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

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

SOIL Sampling Point: **108**

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
1-2”	10YR 4/2	100					Sandy clay loam	
3-5”	10YR 5/1	70	7.5YR 4/6	30	C	M	Sandy clay loam	
5-12”	10YR 5/2	60	7.5YR 3/4	40	C	M	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:

- ___ 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)
- 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 Floodplains 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:

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation City/County: Prince George's Sampling Date: 05.14.21

Applicant/Owner: BARC State: Md Sampling Point: DP-109

Investigator(s): DRC/LEJ Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat Slope (%): 1

Subregion (LRR or MLRA): LRR R Lat: 39.022274 Long: -76.901565 Datum: NAD83

Soil Map Unit Name: Christiana and Downer NWI classification: UPL

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

Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes	No X	**within a Wetland?**	**Yes** **No X**
Wetland Hydrology Present?	Yes	No X		

Remarks:

Wetland 5
FSD Stand 4 Plot 1 spot

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:

Upland plot for wet 4

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

Sampling Point: **109**

		Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Size: 20-foot radius plot)				
1.	*Fagus grandifolia*	60	Y	FACU
2.	*Liquidambar styraciflua*	15	N	FACU
3.	*Quercus alba*	25	N	UPL
4.	*Acer rubrum*	5	N	FAC
5.				
6.				
		105	= Total Cover	
	50% of total cover:	52.5	20% of total cover:	21
Sapling Stratum (Plot Size: 20-foot radius plot)				
1.	*Lindera benzoin*	35	Y	FACW
2.				
3.				
4.				
5.				
6.				
		35	= Total Cover	
	50% of total cover:	17.5	20% of total cover:	7
Shrub Stratum (Plot Size: 20-foot radius plot)				
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	
	50% of total cover:		20% of total cover:	
Herb Stratum (Plot Size: 10-foot radius plot)				
1.	*Podophyllum peltatum*	5	Y	FACU
2.	*Arisaema triphyllum*	5	Y	FACW
3.	*Amphicarpaea bracteata*	5	Y	FAC
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		15	= Total Cover	
	50% of total cover:	7.5	20% of total cover:	3
Woody Vine Stratum (Plot Size: 20-foot radius plot)				
1.	*Parthenocissus quinquefolia*	6	N	FACU
2.	*Smilax rotundifolia*	15	Y	FAC
3.	*Lonicera japonica*	10	Y	FACU
		31	= Total Cover	
	50% of total cover:	15.5	20% of total cover:	6.2

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 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.

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

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

SOIL Sampling Point: **109**

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
1-3”	10YR 3/2	100						Sandy loam
4-12”	10YR 4/6		100					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:

- ___ 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 Floodplains 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:

Sandy and dark soils, very homogenous

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation City/County: Prince George's Sampling Date: 06/02/2021

Applicant/Owner: BARC State: MD Sampling Point: DP-110

Investigator(s): DRC/LEJ Section, Township, Range:

Landform (hillslope, terrace, etc.): Roadside floodplain Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR or MLRA): LRR R Lat: 39.032648 Long: -76.900768 Datum: NAD83

Soil Map Unit Name: Christiana and Downer 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**
Hydric Soil Present?	Yes	X	No		**within a Wetland?** **Yes X** **No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:

Wetland 3 DP
Near perennial unnamed tributary to Indian Creek

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)
- ___ 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 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: **110**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	35	Y	FAC
2. *Quercus palustris*	25	Y	FACW
3. *Liriodendron styraciflua*	5	N	FAC
4. *Nyssa sylvatica*	5	N	FAC
5. *Catalpa speciosa*	5	N	FACU
6.			
	75	= Total Cover	
50% of total cover:	37.5	20% of total cover:	15

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Acer rurbrum*	5	Y	FAC
2. *Platanus occidentalis*	5	Y	FACW
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover:	5	20% of total cover:	2

Shrub Stratum (Plot Size: 20-foot radius plot)			
1. *Lindera benzoin*	40	Y	FACW
2. *Viburnum prunifolium*	10	Y	FACU
3.			
4.			
5.			
6.			
	50	= Total Cover	
50% of total cover:	25	20% of total cover:	10

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Toxicodendron radicans*	10	N	FAC
2. *Symplocarpus foetidus*	5	N	OBL
3. *Microstegium vimineum*	15	Y	FAC
4. *Cinna arundinacea*	10	N	FACW
5. *Agrostis stolonifera*	20	Y	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	
50% of total cover:	30	20% of total cover:	12

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. *Parthenocissus quinquefolia*	5	N	FACU
2. *Smilax rotundifolia*	25	Y	FAC
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

	1 - Rapid Test for Hydrophytic Vegetation
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.

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

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

SOIL Sampling Point: **110**

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 3/2	100					loam	
4-10	10YR 4/2	70	7.5YR 4/4	30	C	M	Fine sandy loam	
10-12	10YR 4/1	80	10YR 4/6	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:

- ___ 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)
- 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 Floodplains 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:

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation City/County: Prince George's Sampling Date: 05/12/2021

Applicant/Owner: BARC State: MD Sampling Point: DP-111

Investigator(s): DRC/LEJ Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 4

Subregion (LRR or MLRA): LRR R Lat: 39.031697 Long: -76.899716 Datum: NAD83

Soil Map Unit Name: Christiana and Downer 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**
Hydric Soil Present?	Yes	X	No		**within a Wetland?** **Yes** **X** **No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:

Wetland 2 DP

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)
- ___ 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** **X** **No** ___

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

Remarks:
Wetland 2 data point

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

Sampling Point: **111**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fagus grandifolia*	15	Y	FACU
2. *Acer rubrum*	30	Y	FAC
3. *Quercus palustris*	20	Y	FACW
4.			
5.			
6.			
	65	= Total Cover	
50% of total cover:	32.5	20% of total cover:	13

Sapling Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Cinna arundinacea*	15	Y	FACW
2. *Agrostis stolonifera*	20	Y	FACW
3. *Toxicodendron radicans*	30	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65	= Total Cover	
50% of total cover:	32.5	20% of total cover:	13

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- 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.

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

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

SOIL Sampling Point: **111**

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
0-2	10YR 3/4	100					Sandy loam	
3-11	10YR 3/2	75	10YR 5/6	25	C	M	Sandy loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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)
- 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 Floodplains 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:

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation Site City/County: Prince George's Sampling Date: 04/15/21

Applicant/Owner: BARC State: MD Sampling Point: 112

Investigator(s): DRC/LEJ Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat Slope (%): 0-1

Subregion (LRR or MLRA): LRR R Lat: 39.033198 Long: -76.902260 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer NWI classification: UPL

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

Are Vegetation ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes	No X	**within a Wetland?**	**Yes** **No X**
Wetland Hydrology Present?	Yes	No X		

Remarks:

Off of Powdermill Road just before wetland begins

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 ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

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

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

Remarks:

Wetland 1 UPL point

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

Sampling Point: **112**

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1. *Lindera benzoin*	40	Y	FACW
2. *Rosa multiflora*	15	Y	FACU
3.			
4.			
5.			
6.			
	55	= Total Cover	
50% of total cover:	22.5	20% of total cover:	11

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Microstegium vimineum*	40	Y	FAC
Cinna arundinacea			
2.	40	Y	FACW
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: 20-foot radius plot)			
1. *Lonicera japonica*	15	Y	FACU
2.			
3.			
	15	= Total Cover	
50% of total cover:	7.5	20% of total cover:	3

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is >50%

_____ 3 - Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1]

_____

(Explain)

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

Definitions of 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.

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

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

SOIL Sampling Point: **112**

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"	10 YR 3/2	100					Silt loam	
3-12"	10 YR 4/3	65	10YR 4/6	35	C	M	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:

- ___ 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 Floodplains 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:

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: BEP Traffic Mitigation City/County: Prince George's Sampling Date: 04/15/2021

Applicant/Owner: BARC State: MD Sampling Point: 113

Investigator(s): DRC/LEJ Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat Slope (%): 0-1%

Subregion (LRR or MLRA): LRR R Lat: 39.032179 Long: -76.901264 Datum: NAD 83

Soil Map Unit Name: Christiana and Downer NWI classification: PEM/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	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:

Directly east of TS-1, right off of road. Clear are (artificially) before 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)
- X 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	X	No	0-1"	Depth (inches): ___

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

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

Remarks:
Standing water around point
Water in soil pit at 10"
Wetland 1 wet point

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

Sampling Point: **113**

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Cinna arundinacea*	60	Y	FACW
2. *Cirsium arvense*	10	N	FACU
3. *Juncus effusus*	5	N	OBL
4. *Microstegium vimineum*	40	Y	FAC
5. *Symplocarpus foetidus*	15	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	130	= Total Cover	
50% of total cover:	65	20% of total cover:	26

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= 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		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

(Explain)

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

Definitions of 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.

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

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

SOIL Sampling Point: **113**

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	90	7.5 YR 4/6	10	C	PL	Silt loam	
4-12	10YR 4/2	70	7.5yr 4/6	30	C	Pl	Silt loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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)
- 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 Floodplains 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:

10" down, standing water

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Bureau of Engraving and Printing on BARC City/County: Greenbelt/PG Sampling Date: 4/3/20

Applicant/Owner: Bureau of Engraving and Printing State: MD Sampling Point: DP-8

Investigator(s): DRC/LJ/CO Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat pasture Local relief (concave, convex, none): concave Slope (%): 1-3%

Subregion (LRR or MLRA): MLRA S/LRR 149A Lat: 39° 01' 59.75" Long: 76° 52' 54.17" Datum: NAD 83

Soil Map Unit Name: Christiana-Downer Complex, 5-10% slopes 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 ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks:
Wetland 7 Data point. Wetland located on bench above WUS-4.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X 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 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)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2"

Water Table Present? Yes ___ No X Depth (inches): ___

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:

Toe of slope of open pasture, above intermittent stream channel (WUS-4).

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

Sampling Point: **DP-8**

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)				
1.	*Agrostis stolonifera*	80	Y	FACW
2.	*Phalaris arundinacea*	20	N	FACW
3.	*Ranunculus repens*	10	N	FAC
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		110	= Total Cover	
50% of total cover:		55	20% of total cover:	22

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

(Explain)

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

Definitions of 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.

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

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

SOIL

Sampling Point: DP-8

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
0-8	10YR 4/2	80	7.5YR 4/6	20	C	PL	Fine sandy loam	
8-12	10YR 4/3	70	10YR 5/4	30	C	M	Fine sandy loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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)
- 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 Floodplains 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:

Based on soil profile, hydrology source appears to be surface water.

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Bureau of Engraving and Printing on BARC City/County: Greenbelt/PG Sampling Date: 4/3/20

Applicant/Owner: Bureau of Engraving and Printing State: MD Sampling Point: DP-9

Investigator(s): DRC/LJ/CO Section, Township, Range:

Landform (hillslope, terrace, etc.): Road embankment Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR or MLRA): MLRA S/LRR149A Lat: 39° 01' 59.28" Long: 76° 52' 54.21" Datum: NAD 83

Soil Map Unit Name: Christiana-Downer Complex, 5-10% slopes NWI classification: UPL

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
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Upland data point located between Wetlands 7 and 8

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 signs of hydrology.

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

Sampling Point: **DP-9**

Tree Stratum (Plot Size: 20-foot radius plot)	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: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)				
1.	*Festuca pratensis*	70	Y	FACU
2.	*Trifolium repens*	10	N	FACU
3.	*Plantago lanceolata*	5	N	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		85	= Total Cover	
50% of total cover:		42.5	20% of total cover:	17

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= 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		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

(Explain)

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

Definitions of 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.

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

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

SOIL

Sampling Point: DP-9

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	60	5YR 4/6	20			Sandy loam	Fill material
			10YR 7/2				Clay	Fill material

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 Floodplains 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:

Soil is comprised of mixed loam/clay with gravel from road fill.

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WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Bureau of Engraving and Printing on BARC City/County: Greenbelt/PG Sampling Date: 4/3/20

Applicant/Owner: Bureau of Engraving and Printing State: MD Sampling Point: DP-10

Investigator(s): DRC/LJ/CO Section, Township, Range:

Landform (hillslope, terrace, etc.): Flat pasture Local relief (concave, convex, none): concave Slope (%): 5-8%

Subregion (LRR or MLRA): MLRA S/LRR 149A Lat: 39° 01' 58.37" Long: 76° 52' 55.73" Datum: NAD 83

Soil Map Unit Name: Christiana-Downer Complex, 5-10% slopes 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 ___ , Soil ___ , or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ___ , Soil ___ , or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area**
Hydric Soil Present?	Yes	X	No		**within a Wetland?** **Yes** **X** **No**
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Wetland 8 Data point.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- X 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)
- ___ 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): 0"

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

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

Remarks:

Ground water flow in swale approximately 2' west of data point. Wetland 8 drains under Powder Mill road to WUS-4.
Cypress knees present.

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

Sampling Point: **DP-10**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Diospyros virginiana*	5	Yes	FAC
2. *Taxodium distichum*	8	Yes	OBL
3.			
4.			
5.			
6.			
	13	= Total Cover	
50% of total cover:	6.5	20% of total cover:	2.6

Sapling Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 10-foot radius plot)			
1. *Typha latifolia*	80	Y	OBL
2. *Juncus effuses*	10	N	OBL
3. *Lythrum salicaria*	5	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	
50% of total cover:	47.5	20% of total cover:	19

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
		= 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		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

(Explain)

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

Definitions of 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.

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

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

SOIL Sampling Point: DP-10

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
0-8	10 YR 4/2	70	10YR 4/3	30	C	PL	Sandy loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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)
- 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 Floodplains 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:

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APPENDIX C
Photographs

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Photo 1: Representative photo of Wetland 1 along Powder Mill Road

Photo 2: Representative photo of Wetland 1, southern portion of Edmonston Road

Photo 3: Representative photo of Wetland 2 along Powder Mill Road

Photo 4: Representative photo of Wetland 4 along Powder Mill Road

Photo 5: Representative photo of Wetland 6 facing Powder Mill Road

Photo 6: Waterlogged area in well access just north of Powder Mill Road

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APPENDIX D
Cowardin Classification Key

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WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

Marine System

System	M - Marine							
Subsystem	1 - Subtidal				2 - Intertidal			
Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RF – Reef	AB – Aquatic Bed	RF – Reef	RS – Rocky Shore	US – Unconsolidated Shore
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud	1 Algal 3 Rooted Vascular	1 Coral 3 Worm	1 Algal 3 Rooted Vascular	1 Coral 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

Estuarine System

System	E - Estuarine												
Subsystem	1 - Subtidal				2 - Intertidal								
Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RF – Reef	AB – Aquatic Bed	RF – Reef	SB – Streambed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent	SS – Scrub-Shrub	FO – Forested
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 4 Floating Vascular	2 Mollusk 3 Worm	1 Algal 3 Rooted Vascular 4 Floating Vascular	2 Mollusk 3 Worm	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Non-persistent 5 *Phragmites australis*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

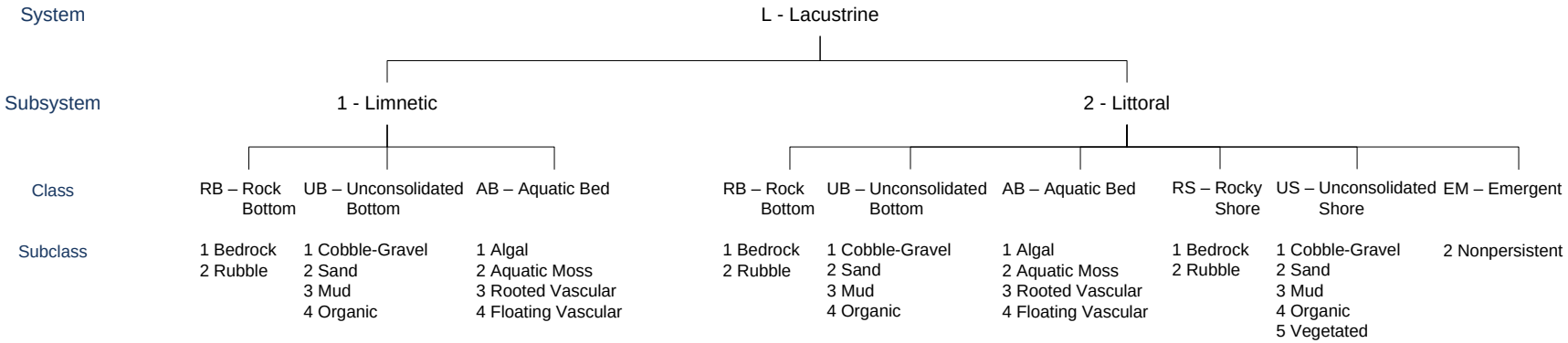
Riverine System

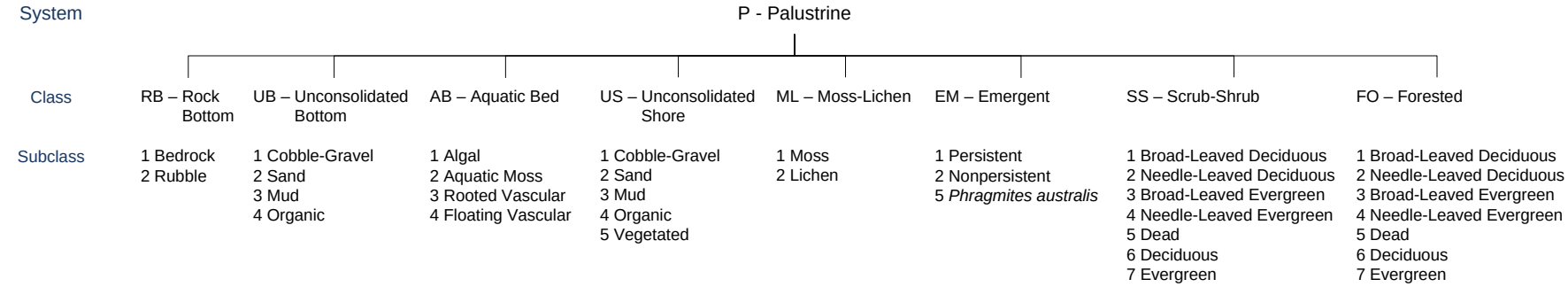
System	R - Riverine						
Subsystem	1 - Tidal	2 – Lower Perennial	3 – Upper Perennial	4* - Intermittent	5* – Unknown Perennial		
Class	RB** – Rock Bottom	UB – Unconsolidated Bottom	SB** – Streambed	AB – Aquatic Bed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent

* **Intermittent** is limited to the **Streambed** Class;
Unknown Perennial is limited to **Unconsolidated Bottom** Class code **R5UB** only
** **Rock Bottom** is not permitted for the **Lower Perennial** Subsystem;
Streambed is limited to **Tidal** and **Intermittent** Subsystems

Classification of Wetlands and Deepwater Habitats of the United States, Cowardin *et al*. 1979

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION



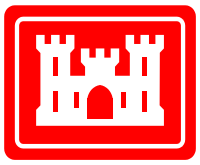


MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	i Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

FOREST STAND DELINEATION REPORT
Bureau of Engraving and Printing
Traffic Mitigation
Beltsville Agricultural Research Center



December 2023

Prepared For:

Bureau of Engraving and Printing
Washington, DC

Prepared By:

U.S. Army Corps of Engineers
Baltimore District, Planning Division
2 Hopkins Plaza
Baltimore, Maryland 21201

TABLE OF CONTENTS

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1. Introduction

The U.S. Army Corps of Engineers (USACE), Baltimore District, Planning Division prepared this report at the request of the United States Department of the Treasury, Bureau of Engraving and Printing (BEP), to identify and delineate forest stands and specimen trees found within the proposed site boundaries.

BEP proposes to construct and operate a new currency production facility (CPF) within the existing Beltsville Agricultural Center (BARC) in Prince George's County, Maryland. The new facility would replace BEP's current CPF located in Washington, D.C., with a more modern facility that meets production needs.

This report follows a 2019 forest stand delineation (FSD) conducted as part of the Environmental Impact Statement (EIS) for the Proposed Replacement CPF. To address traffic and utility measures identified since the EIS was completed, a supplemental Environmental Assessment (EA) is being prepared. The proposed action for this supplemental EA includes various improvements to the roadways and seven (7) intersections identified in the EIS as requiring mitigation to minimize delays and reduce queue lengths. It also includes utility infrastructure improvements required to accommodate the replacement CPF and additional improvements for the CPF that are outside of the limits of disturbance identified in the EIS. (Figure 1). In addition, current access to two (2) wells located just east of Poultry Road would be blocked by the new CPF, so a road has been proposed to access these wells.

BARC is comprised of approximately 6,850 acres of land northeast of Washington, D.C. The new CPF would be an approximately 1 million square foot facility located on an approximately 104-acre site in the Central Farm area of BARC, along Poultry Road. The areas for traffic mitigation and well access that were examined for this FSD total approximately 93 acres. Several of the forest stands expand outside of the bounds of the investigated area for this FSD. Any forest stand boundaries outside of the study areas are approximated for the purposes of mapping. The Edmonston Road project area and Odell Road (Sanitary Sewer Alternative One area) are the only parcels in which FSD plots were taken, as they are the only forested areas within the project areas described below. Specimen trees were marked whenever observed, on all project areas.

2. Site Description

The study area is approximately 93 acres located in Beltsville, Maryland. The areas described below were surveyed for the traffic mitigation action that proposes to improve the intersections as well as construct a well access road. The largest, forested portion of the project area includes Edmonston Road, beginning just north of Powder Mill Road and running south to Sunnyside Avenue, and encompasses the intersections of Edmonston Road and Powder Mill Road, Edmonston Road and Beaver Dam Road, and Edmonston Road and Sunnyside Avenue (Figure 5, Appendix B). A forested wetland system runs along the western edge of Edmonston Road, which drains to Indian Creek. BARC agricultural fields lie to the east of Edmonston Road, the Sanitary Sewer Alternative Two runs northeast through these fields, connecting to the laydown area.

Another portion of the project area includes 16 acres of land along Powder Mill Road expanding north, in the vicinity of Animal Husbandry Road (Figure 7, Appendix B). This area primarily consists of mowed and maintained lawn. The last two project areas are a 4-acre area around the intersections of Powder Mill Road and the Baltimore-Washington Parkway, and Powder Mill Road and Springfield Road (Figure 8, Appendix B); and a 1.8-acre Sanitary Sewer Alternative One area north of Odell Road and northeast of Poultry Road (Figure 6, Appendix B). Eighteen (18) specimen trees were identified within traffic mitigation areas and can be seen in Figures 5 and 7 in Appendix B. All other specimen trees were documented outside of traffic mitigation areas.

The geology at BARC consists of Lower Cretaceous sediments of the Potomac Group, which consists of the Patuxent, the Arundel, and the Patapsco Formations, respectively decreasing in age. The Patuxent and Patapsco Formations are composed primarily of sand and gravel and comprise the most prevalent water bearing aquifers in Prince George's County. The Arundel is mostly clay and creates artesian conditions in the underlying Patuxent Formation in some locations.

3. Methodology

Prior to field investigations, topographic maps, county soil surveys, and Maryland Department of Natural Resources digital aerial orthophotographs were reviewed to identify probable forest stand boundaries. The project area was surveyed between 15 April and 15 May 2021, with additional surveys in August and September 2023, to identify, delineate, and characterize forest stands. Forest stands were distinguished primarily by differences in species composition and successional stage.

A 1/10-acre fixed plot sampling technique was used to assess forest stand conditions and forest structure. Sampling plots were chosen to be evenly distributed throughout the stands. A stick flag was placed in the center of each plot and along the perimeter of the circular plot in each of the four cardinal directions. The plot center was marked in the field with pink tape flagging and the stand and plot number labeled with a black marker. All additional forest stand and forest structure procedures for data collection follow guidelines of the State Forest Conservation Technical Manual (Third edition, 1997). The priorities of the stands are given according to the guidelines in the Technical Manual. Priority 1 stands have wetlands, specimen trees, streams, steep slopes, and/or other sensitive areas. In some cases, a stand can have a sensitive area within its boundaries but be a low-quality stand based upon quality of vegetation, presence of invasive species, or other values. These are noted in the stand descriptions.

4. Results

Six forest stands, of two cover types, were identified within the study area. The cover types were red maple sweetgum and (*Acer rubrum*/*Liquidambar styraciflua*) oak/hickory with differing species of oak and hickory being the co-dominant species. Stand variations result from changes in topographic position, degree of slope, and amount and type of historical human disturbance. Forest stands were identified in two areas, the Edmonston Road area and the Odell Road/Sanitary Sewer Alternative 1 area (Figures 5 and 6, Appendix B). Specimen trees were only identified in the Edmonston Road area and the Powder Mill Road/Animal Husbandry Vicinity (Figures 5 and 7,

Appendix B).

Forest stand conditions and forest structure were assessed at sample plots within each stand as detailed in the following stand descriptions (see also Appendix A). A summary of forest conditions within the stands are also included in Appendix A. Figures 5 and 6 in Appendix B depict the approximate location of the boundary of forest cover type within the study area. A brief description of the forest stands are as follows:

Stand 1

Sample Plots: **2**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red Maple/Sweetgum**

Stand 1 is co-dominated by red maple and sweet gum of size class 6" to 11.9" diameter at breast height (dbh), with approximately 70% canopy closure. Other trees in the canopy included ironwood *(Carpinus caroliniana*), pin oak (*Quercus palustris*), beech (*Fagus grandifolia*), Tulip poplar (*Liriodendron tulipifera*), red elm (*Ulmus rubra*), boxelder (*Acer negundo*), and red mulberry (*Morus rubra*).

The understory from 3' to 20' tall averages 100% coverage, and includes, southern arrowwood (*Viburnum dentatum*), northern spicebush (*Lindera benzoin*), green ash (*Fraxinus pennsylvanica*), winterberry holly (*Ilex verticillata*), Tatarian honeysuckle (*Lonicera tatarica*), and red elm.

Common herbaceous and woody species 0' to 3' tall consist of eastern poison ivy (*Toxicodendron radicans*), Solomon's seal (*Polygonatum* sp), common jewelweed (*Impatiens capensis*), common greenbrier (*Smilax rotundifolia*), pin oak, Virginia creeper (*Parthenocissus quinquefolia*), skunk cabbage (*Symplocarpus foetidus*), grape vine (*Vitis riparia*), strawberry bush (*Euonymus americanus*), stout woodreed (*Cinna arundinacea*), sedge species (*Carex* sp.), and blackberry (*Rubus allegheniensis*), with approximately 100% coverage.

Invasive species included Chinese privet (*Ligustrum sinense*), Japanese stiltgrass (*Microstegium vimineum),* garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), cleavers (*Galium aparine*), Tatarian honeysuckle, common mugwort (*Artemisia vulgaris*), and multiflora rose (*Rosa multiflora*), with approximately 25% coverage.

The wildlife value of the stand is moderate due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 1 for retention because of its mature successional stage and wetlands.

Environmental Features
Stand 1 contains a wetland, with a dense and healthy understory housing minimal invasive species. However, it does not contain specimen trees and has been impacted by the roadway.

Stand 2

Sample Plots: **1**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red Maple/Sweetgum**

Stand 2 is co-dominated by red maple and sweetgum, of size class 2" to 5.9" dbh, with approximately 80% canopy closure. Other trees in the canopy include blackgum (*Nyssa sylvatica*), willow oak (*Quercus phellos*), beech and green ash.

The understory from 3' to 20' tall averages 80% coverage, and includes southern arrowwood, red maple, and northern spicebush.

Common herbaceous and woody species 0' to 3' tall consist of common greenbrier, Virginia creeper, and mayapple (*Podophyllum peltatum*), with approximately 80% cover.

Invasive species observed in sample plots were periwinkle (*Catharanthus roseus*), English ivy (*Hedera helix*), multiflora rose, and Japanese honeysuckle (*Lonicera japonica*), with a low coverage of 10%. The wildlife value of the stand is medium due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 1 for retention because of its mature successional stage, wetland presence, specimen trees, and lack of invasive species.

Environmental Features
Stand 2 contains one specimen tree within and one outside of the plot, two wetlands, a stream, and has a very low occurrence of invasive species. In addition, the stand is very small and impacted by adjacent roadway.

Stand 3

Sample Plots: **4**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red Maple/Sweetgum**

Stand 3 is dominated by red maple and sweetgum, of size class 6" to 11.9" dbh, with approximately 70% canopy closure. Other trees in the canopy include tulip poplar, blackgum, pin oak, ironwood, beech, willow oak, American holly (*Ilex opaca*), and sweetbay magnolia (*Magnolia virginiana*).

The understory from 3' to 20' tall includes northern spicebush, pin oak, Tatarian honeysuckle, beech, American holly, red maple, white fringe tree (*Chionanthus virginicus*), highbush blueberry (*Vaccinium corymbosum*), and sweet pepperbush (*Clethra alnifolia*), with an average coverage of 55%.

Common herbaceous and woody species 0' to 3' tall consist of Virginia creeper, eastern poison ivy,

sensitive fern (*Onoclea sensibilis*), common greenbrier, sweetgum, common jewelweed, greater bladder sedge (*Carex intumescens*), blackberry, southern arrowwood, bristly dewberry (*Rubus hispidus*), strawberry bush, mayapple, skunk cabbage, Jack-in-the-pulpit (*Arisaema triphyllum*), netted chain fern (*Woodwardia areolata*), Canada mayflower (*Maianthemum canadense*), and white oak (*Quercus alba*), with an average 90% coverage.

Invasive species observed in sample plots were Tatarian honeysuckle, hog peanut (*Amphicarpaea bracteata),* Asiatic bittersweet (*Celastrus orbiculatus*), multiflora rose, garlic mustard, Japanese stilt grass, cleavers, and Japanese honeysuckle, with approximately 21% cover. The wildlife value of the stand is high due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 1 for retention because of its mature successional stage and wetlands.

Environmental Features
Stand 3 contains one specimen tree and has a moderate occurrence of invasive species. The stand houses parts of a large wetland system and contains 19 specimen trees outside of the plot radius. The stand has a low to moderate quantity of invasive species.

Stand 4

Sample Plots: **2**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Oak/hickory**

Stand 4 is co-dominated by southern red oak (*Quercus falcata*), northern red oak (*Quercus rubra*), and bitternut hickory of size class 6" to 11.9" dbh, with approximately 60% canopy closure. Other trees in the canopy include red maple, beech, white oak, sweetgum, and blackgum.

The understory from 3' to 20' tall includes northern spicebush, flowering dogwood (*Cornus florida*), ironwood, crabapple (*Malus* sp.), and winterberry holly, with and average coverage of 50%.

Common herbaceous and woody species 0' to 3' tall consist of white oak, beech, Virginia creeper, blackberry, northern spicebush, sensitive fern, mayapple, common greenbrier, Jack-in-the-pulpit, sedge, winterberry holly, ironwood, and sessile bellwort (*Uvularia sessilifolia*), with an average coverage of 90%.

Invasive species observed in sample plots were Japanese honeysuckle, garlic mustard, and hog peanut, with an approximate 10% coverage. The wildlife value of the stand is moderate due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 2 for retention because of its mature successional stage, lack of specimen trees, and wetland.

Environmental Features
Stand 4 contains a wetland, but no specimen trees. It has a very small percentage of invasive species cover.

Stand 5

Sample Plots: **1**
Successional Stage: **Mature**
Priority: **3**
Cover Type: **Oak/hickory**

Stand 5 is dominated by willow oak of size class 12" to 19.9" dbh, with approximately 80% canopy closure. Other trees in the canopy include red maple, beech, and sweetgum.

The understory from 3' to 20' tall includes tulip poplar, poison ivy, ironwood, persimmon (*Diospyros virginiana*), green ash, staghorn sumac (*Rhus typhinus*), Asiatic bittersweet, and porcelain-berry (*Ampelopsis brevipedunculata*) with 100% coverage.

Common herbaceous and woody species 0' to 3' tall consist of blackberry, black raspberry, Japanese barberry, Christmas fern (*Polystichum acrostichoides*), Virginia jumpseed (*Persicaria virginiana*), shallow sedge (*Carex lurida*), false nettle (*Boehmeria cylindrica*), strawberry bush, partridge-berry (*Mitchella repens*), and common greenbrier with 100% coverage.

Invasive species observed in sample plots were Asiatic bittersweet, multiflora rose, Tartarian honeysuckle, Japanese honeysuckle, Japanese barberry, English ivy, and Japanese stiltgrass with approximately 40% coverage. The wildlife value of the stand is moderate due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 3 for retention because of its lack of sensitive features such as wetlands, streams, steep slopes, etc. The stand also exhibits relatively high coverage by invasive species.

Environmental Features
Stand 5 contains no sensitive environmental features and a higher percentage of invasive species cover than the other stands.

Stand 6

Sample Plots: **1**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red maple/sweetgum**

Stand 6 is dominated by red maple of size class 12" to 19.9" dbh, with 100% canopy closure. Other trees in the canopy include sweetgum.

The understory from 3' to 20' tall includes black cherry (*Prunus serotina*), poison ivy, southern arrowwood, and green ash with 100% coverage.

Common herbaceous and woody species 0’ to 3’ tall consist of common greenbrier with 100% coverage.

Invasive species observed in sample plots were Asiatic bittersweet, Chinese privet, Tartarian honeysuckle, Japanese honeysuckle, and English ivy with approximately 35% coverage. The wildlife value of the stand is moderate to high due to the presence of cover, forage and water, and its connection to a larger forested corridor to the north with a stream. The stand rates a Priority 1 for retention because of its stream and wildlife value. The stand does, however, exhibit relatively high coverage by invasive species.

Environmental Features
Stand 6 contains a stream and a higher percentage of invasive species cover than the other stands.

5. Conclusions

Six forest stands were delineated and assessed on the site, comprised of two cover types – red maple/sweetgum and oak/hickory. There are 20 specimen trees documented within forest stands along Edmonston Road; only one of these is located within the project limit of disturbance. Seventeen (17) other specimen trees were documented within the limit of disturbance in the Powder Mill/Animal Husbandry area (Figure 7, Appendix B), but are not located within a forest stand. Invasive species coverage is low to moderate in all stands. Stands 1 and 3 have specimen trees and Stands 1, 2, 3, 4 and 6 have wetlands and/or a stream. Stands 1, 2, 3, 4 and 6 rank as Priority 1 retention stands due to the presence of sensitive areas (wetlands and streams), specimen trees, and their mature successional stage. Stand 5 is ranked as Priority 3 due to the lack of sensitive features and high occurrence of non-native invasive species.

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6. References

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7. Acronyms and Abbreviations

BARC	Beltsville Agricultural Research Center
BEP	Bureau of Engraving and Printing
CPF	Currency Production Facility
dbh	diameter at breast height
EIS	Environmental Impact Statement
FSD	Forest Stand Delineation
USACE	U.S. Army Corps of Engineers

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APPENDIX A

Field Sampling Data Sheets

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FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:1** | **Plot #: 1**
Forest Cover Type: Red Maple/Sweetgum | **Date:05/11/21**
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 100		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Ironwood						1											1
2	Pin Oak						2			1			1					4
3	Sweetgum					3			2									5
4	Red Maple		2			2			2									6
5	Tulip Poplar			1														1
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	3			8			5			1			0				17
	Number & Size of Standing Dead Trees							1										1

List of Woody Plant Species 3'-20':
Southern arrow-wood, Northern spicebush, hazelnut, green ash

Canopy Closure:

C	N	E	S	W	%
Y	Y	N	N	Y	60

Percent of Invasive Cover per Plot (all layers): 30%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
poison ivy, Solomon's seal, jewelweed, common greenbrier, pin oak, Virginia creeper, skunk cabbage, strawberry bush

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

List of Major Invasive Species per Plot (All Layers):
Chinese privet, Japanese stiltgrass, garlic mustard, Japanese barberry, cleavers

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	Y	N	N	Y	40

HABITAT: What species present? deer

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site? West of stream

Comments:
over 100% absolute cover
Northern spicebush understory and southern arrow-wood
Dry when surveyed
East of Powdermill Rd. just off road (DP 105)
picture facing Powder mill road , plot center

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 1 | **Plot #:** 2
Forest Cover Type: Red Maple/Sweetgum | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 80		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red elm			1														1
2	Boxelder			1			1											2
3	Red mulberry			1														1
4	Sweetgum		1			1			2			1						5
5	Beech			1														1
6	Tulip poplar									1			2					3
7	Red Maple					3			2									5
8																		0
9																		0
	Total Number of Trees per Size Class	5			5			5			3			0				18
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
Winterberry, Northern spicebush, Tartarian honeysuckle

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	Y	N	80

Percent of Invasive Cover per Plot (all layers): 20%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
poison ivy, Virginia creeper, stout wood reed, Sedge species, blackberry, Solomon's seal

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, cleavers, Japanese stiltgrass, garlic mustard, Tartarian honeysuckle, common mugwort, multiflora rose

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? light
Downed woody debris: light

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	Y	N	N	Y	40

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? small patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
Northern spicebush understory, healthy
Dense woods, futher into woods than plot 1
extends to site LOD
flat area, no wetlands

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 2 | **Plot #:** 1
Forest Cover Type: Red Maple/Sweetgum | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 110	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Sweetgum					2			1									3
2	Red Maple		7			2			1									10
3	Blackgum			2			1											3
4	Willow oak						1											1
5	Beech			1														1
6	Green ash			1														1
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	11			6			2			0			1				
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
Southern arrow-wood, red maple, Northern spicebush

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	N	Y	80

Percent of Invasive Cover per Plot (all layers): 10%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
Common greenbrier, Virginia creeper, Mayapple, poison ivy, Solomon's seal

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

List of Major Invasive Species per Plot (All Layers):
English ivy, periwinkle, multiflora rose, Japanese honeysuckle

Rare, etc. Species? No
Specimen Trees? Yes
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	Y	N	N	40

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site? adjacent to wetland 4

Comments:
Wetland 4 adjacent
shaded, thick greenbrier presence, most of understory

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 1
Forest Cover Type: | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 190	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Sweetgum								5			2						7
2	Red maple					1			5									6
3	Tulip poplar									1								1
4	Blackgum			1														1
5	Pin oak												1					1
6	Ironwood			1														1
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	2			1			11			3			0				
	Number & Size of Standing Dead Trees	1						2										3

List of Woody Plant Species 3'-20':	Canopy Closure:						Percent of Invasive Cover per Plot (all layers):	Plot Successional Stage:
Northern spicebush, pin oak, Tartarian honeysuckle	C	N	E	S	W	%	25%	Mature
	Y	Y	N	Y	N	60		

List of Understory Species 0'-3':	Understory Cover 3'-20':						List of Major Invasive Species per Plot (All Layers):
Virginia creeper, sensitive fern, common greenbrier, sweetgum, jewelweed, greater bladder sedge, blackberry, southern arrow-wood	C	N	E	S	W	%	Japanese honeysuckle, hog peanut, multiflora rose, Tartaruan honeysuckle, garlic mustard, Japanese stiltgrass
	Y	N	N	N	Y	40	

		Herbaceous & Woody Cover 0'-3':						HABITAT: What species present?
Rare, etc. Species?	No	C	N	E	S	W	%	
Specimen Trees?	No	Y	Y	Y	Y	Y	100	Habitat size, location, configuration:
Historic Sites?	No							
Disease?	No							
Insects/Infestation?	No	Downed Woody Debris:						
Exotic Plants?	No	C	N	E	S	W	%	Wildlife cover/food/water?
Leaf litter?	light	N	Y	N	N	N	20	Y/Y/Y
Downed woody debris:	light							Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 2
Forest Cover Type: Red Maple/Sweetgum | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 210	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red maple					5			1									6
2	Sweetgum					12			9									21
3	Beech			2			2											4
4	tulip poplar						2											2
5	Willow oak												1					1
6	Ironwood																	0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	2			21			10			1							
	Number & Size of Standing Dead Trees	1						1										2

List of Woody Plant Species 3'-20':
Northern spicebush

Canopy Closure:

C	N	E	S	W	%
Y	N	Y	N	Y	80

Percent of Invasive Cover per Plot (all layers): 30%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
Virginia creeper, common greenbrier, bristly dewberry, Jack-in-the-pulpit, mayapple, poison ivy, jewelweed

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, multiflora rose, Japanese stiltgrass, and cleavers

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	Y	Y	Y	Y	80

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

HABITAT: What species present?
deer,red-winged blackbird

Habitat size, location, configuration:

Wildlife cover/food/water?
Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
not many saplings, lots of deer

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 2
Forest Cover Type: Red Maple/Sweetgum | **Date:** 05.11.21
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 120		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Beech			11			3											14
2	Red Maple																	0
3	Sweetgum		2			6			4									12
4	Amercian holly						1		2									3
5	Willow oak															1		1
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	13			10			6			0			1				30
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
beech, Northern spicebush, American holly

Canopy Closure:

C	N	E	S	W	%
Y	N	Y	Y	N	60

Percent of Invasive Cover per Plot (all layers): 15%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
skunk cabbage, jewelweed, common greenbrier, Jack-in-the-pulpit, blackberry, mayapple, Virginia creeper, strawberry bush

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

List of Major Invasive Species per Plot (All Layers):
Japanese stiltgrass, Japanese honeysuckle, cleavers

Rare, etc. Species?	No
Specimen Trees?	Yes
Historic Sites?	No
Disease?	No
Insects/Infestation?	No
Exotic Plants?	No
Leaf litter?	heavy
Downed woody debris:	moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	N	N	Y	N	20

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site? encroaches wetland 1

Comments:
near wetland off of Edmonston
very little understory or invasives
Lots of specimen trees in area

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 4
Forest Cover Type: Red maple/ sweetgum | **Date:** 05.11.21
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 80		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red maple		2			4												6
2	Sweetgum					2			2									4
3	Beech																	0
4	White oak									1			1					2
5	Blackgum			1			3											4
6	Sweetbay magnolia			1														1
7	American holly			1														1
8																		0
9																		0
	Total Number of Trees per Size Class	5			9			3			1			0				18
	Number & Size of Standing Dead Trees	1						1										2

List of Woody Plant Species 3'-20':
beech, red maple, white fringetree, American holly, highbush blueberry, sweet pepperbush, white fringetree

Canopy Closure:

C	N	E	S	W	%
Y	N	Y	Y	Y	80

Percent of Invasive Cover per Plot (all layers): 15%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbrier, bristly dewberry, beech, red maple, American holly, highbush blueberry, poison ivy, white oak, Canada mayflower, mayapple, Jack-in-the-pulpit, netted chainfern

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	N	N	N	20

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, cleavers, Japanese stiltgrass

Rare, etc. Species?
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? heavy
Downed woody debris: light

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	Y	Y	Y	80

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
Southern portion of edmonstn near houses
littel understory growth, mostly greenbrier

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 4 | **Plot #:** 1
Forest Cover Type: Oak/Hickory | **Date:** 05.12.21
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 100	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red maple			1			1											2
2	Beech			1			2			1			1					5
3	White oak					1			4									5
4	Bitternut hickory					2			1									3
5	Southern red											1						1
6	Sweetgum			1			5			2			4					12
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	3			11			8			6			0				28
	Number & Size of Standing Dead Trees				1													1

List of Woody Plant Species 3'-20':
Northern spicebush, flowering dogwood, winterberry holly, ironwood, crabapple

Canopy Closure:

C	N	E	S	W	%
Y	N	N	Y	Y	60

Percent of Invasive Cover per Plot (all layers): 15%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
white oak, beech, common greenbrier, Vriginia creeper, blackberry, Japanese honeysuckle, Northern spicebsuh, Sedge species, hog peanut, sensitive fern, mayapple

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	N	Y	40

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, garlic mustard, hog peanut

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

Downed Woody Debris:

C	N	E	S	W	%
N	Y	N	Y	Y	60

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y
Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
Semi-open canopy near wetland 4

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 4 | **Plot #:** 2
Forest Cover Type: Oak/Hickory | **Date:** 05.12.21
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 140	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Beech			2			8											10
2	Red maple			2			2											4
3	Sweetgum			1			4						5					10
4	Northern red oak					1												1
5	Blackgum			2														2
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class																	
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
Winterberry holly

Canopy Closure:

C	N	E	S	W	%
Y	Y	N	Y	N	60

Percent of Invasive Cover per Plot (all layers): 10%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbrier, sensitive fern, Jack-in-the-pulpit, Virginia creeper, winterberry holly, ironwood, sedge species, sessile bellwort

Understory Cover 3'-20':

C	N	E	S	W	%
N	N	Y	Y	Y	60

List of Major Invasive Species per Plot (All Layers): Japanese honeysuckle

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? Oak/Hickory
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	Y	Y	N	60

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
open area, outskirts dense greenbrier

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :JH/DRC**
Owner: BARC | **Stand #:** 5 | **Plot #:** 1
Forest Cover Type: Oak/Hickory | **Date:** 08.02.2023
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 110	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Beech						1										80	1
2	Red maple			1						2							80	3
3	Sweetgum						3			2							80	5
4	Willow oak							1			1						80	2
5																		0
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	1			4			5			1							11
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
staghorn sumac, ironwood, green ash, porcelain berry, American holly, tulip poplar, poison ivy, Asiatic bittersweet, persimmon

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	Y	N	80

Percent of Invasive Cover per Plot (all layers): 40%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbrier, common blackberry, black raspberry, Christmas fern, partridge berry, strawberry bush, false nettle, lurid sedge, Japanese barberry, Virginia jumpseed

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, Asiatic bittersweet, multiflora rose, Japanese barberry, English ivy, Japanese stilt grass, bush honeysuckle

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? Yes
Leaf litter? thin
Downed woody debris: light

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	N	Y	N	40

HABITAT: What species present?
White-tailed deer, grey squirrel

Habitat size, location, configuration:

Wildlife cover/food/water?
cover and hard mast, water on west side of Edmonston

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
stand located on east side of Edmonston Road. Clearing for the road has increased light penetration, therefore increasing invasive coverage along the edge of the stand.

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :JH/LEJ**
Owner: BARC | **Stand #:** 6 | **Plot #:** 1
Forest Cover Type: Red maple/Sweetgum | **Date:** 09.28.2023
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 110	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Sweetgum		1						2			3					80	6
2	Red maple					1			2								80	3
3																	80	0
4																	80	0
5																		0
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	1			1			4			3							9
	Number & Size of Standing Dead Trees	1																1

List of Woody Plant Species 3'-20':
black cherry, poison ivy, southern arrowwood, green ash

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Percent of Invasive Cover per Plot (all layers): 35%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbriar

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	N	Y	80

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, Asiatic bittersweet, English ivy, bush honeysuckle, Chinese privet

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? Yes
Leaf litter? thin
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	N	N	Y	N	20

HABITAT: What species present?
White-tailed deer, grey squirrel

Habitat size, location, configuration:
patch of forest between townhomes

Wildlife cover/food/water?
cover, food and water

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:

relatively high invasive coverage, very thick understory, stream located within stand north of plot,
plot on the edge of the woods

FOREST STAND DELINEATION - FOREST STAND SUMMARY SHEET

Project Name: BEP Traffic Mitigation **Prepared By:** LEJ/DRC

Owner: BARC

Location: BARC **Date: 05/11-05/12/21**

Stand Variable	Stand # 1	Stand #2	Stand # 3	Stand #4
1. Dominant species/ Codominant species	Red Maple,/ Sweetgum	Red Maple,/ Sweetgum	Red Maple/Sweetgum	Oak/Hickory
2. Successional stage	Mature	Mature	Mature	Mature
3. Basal area in s.f. per acre	90	110	130	120
4. Size class of dominant species	6-11.9"	2-5.9'	6-11.9"	6-11.9"
5. Percent of canopy closure	70%	80%	70%	60%
6. Average number of tree species per plot	6	6	6	6
7. Common understory species 3' to 20' tall	Southern arrow-wood, Northern spicebush, hazelnut, green ash, winterberry holly	Southern arrow-wood, red maple, Northern spicebush	Northern spicebush, pin oak, American holly, beech, Tartatrian honeysuckle, sweet pepperbush, highbush blueberry	winterberry holly, Northern spicebush, flowering dogwood, ironwood, crabapple
8. Percent of understory cover 3' to 20' tall	100%	80%	55%	50%
9. Number of woody plant species 3' to 20' tall	15	9	11	13
10. Common understory species 0' to 3' tall	poison ivy, Solomon's seal, jewelweed, common greenbrier, Virginia creeper, skunk cabbage, strawberry bush, blackberry, sedges, stout wood reed	Common greenbrier, Virginia creeper, Mayapple, poison ivy, Solomon's seal	Virginia creeper, sensitive fern, common greenbrier, jewelweed, greater bladder sedge, blackberry, southern arrow-wood, bristly dewberry, Jack-in-the-pulpit, mayapple, poison ivy, skunk cabbage	white oak, beech, common greenbrier, Vriginia creeper, blackberry, Japanese honeysuckle, Northern spicebsuh, Sedge species, hog peanut, sensitive fern, mayapple, Jack-in-the-pulpit
11. Percent of herbaceous & woody plant cover 0' to 3' tall	100%	100%	100%	90%
12. List of major invasive plant species & percent of cover	Chinese privet, Japanese stiltgrass, garlic mustard, Japanese barberry, cleavers, Tartarian honeysuckle, common mugwort, multiflora rose. 25% invasive coverage	English ivy, periwinkle, multiflora rose, Japanese honeysuckle. 10% invasive coverage	Japanese honeysuckle, hog peanut, multiflora rose, Tartaruan honeysuckle, garlic mustard, Japanese stiltgrass, cleavers. 21% invasive coverage	Japanese honeysuckle, garlic mustard, hog peanut. 10% invasive coverage
13. Number of standing dead trees ≥6" dbh per acre	5	0	17.5	20
14. Comments				
15. Priority (1,2,3)	1	1	1	1

FOREST STAND DELINEATION - FOREST STAND SUMMARY SHEET

Project Name: BEP Traffic Mitigation **Prepared By: JH/DRC**

Owner: BARC

Location: BARC **Date: 10.12.2023**

Stand Variable	Stand # 5	Stand #6	Stand # 7	Stand #
1. Dominant species/ Codominant species	Oak/Hickory	Red maple/sweetgum		
2. Successional stage	Mature	Mature		
3. Basal area in s.f. per acre	110	110		
4. Size class of dominant species	12-19.9"	12-19.9"		
5. Percent of canopy closure	80%	100%		
6. Average number of tree species per plot	4	2		
7. Common understory species 3' to 20' tall	tulip poplar, poison ivy, ironwood, persimmon, green ash, staghorn sumac, Asiatic bittersweet, porcelain berry	black cherry, poison ivy, southern arrowwood, green ash		
8. Percent of understory cover 3' to 20' tall	100%	80%		
9. Number of woody plant species 3' to 20' tall	8	4		
10. Common understory species 0' to 3' tall	blackberry, black raspberry, Japanese barberry, Christmas fern, Virginia jumpseed, lurid sedge, false nettle, strawberry bush, partridge berry, greenbrier	Common greenbrier		
11. Percent of herbaceous & woody plant cover 0' to 3' tall	100%	100%		
12. List of major invasive plant species & percent of cover	Asiatic bittersweet, multiflora rose, bush honeysuckle, Japanese honeysuckle, Japanese barberry, English ivy, Japanese stiltgrass. 40% invasive coverage	Japanese honeysuckle, Asiatic bittersweet, English ivy, bush honeysuckle, Chinese privet. 35% invasive coverage		
13. Number of standing dead trees ≥6" dbh per acre	0	1		
14. Comments				
15. Priority (1,2,3)	3	1		

APPENDIX B

Figures

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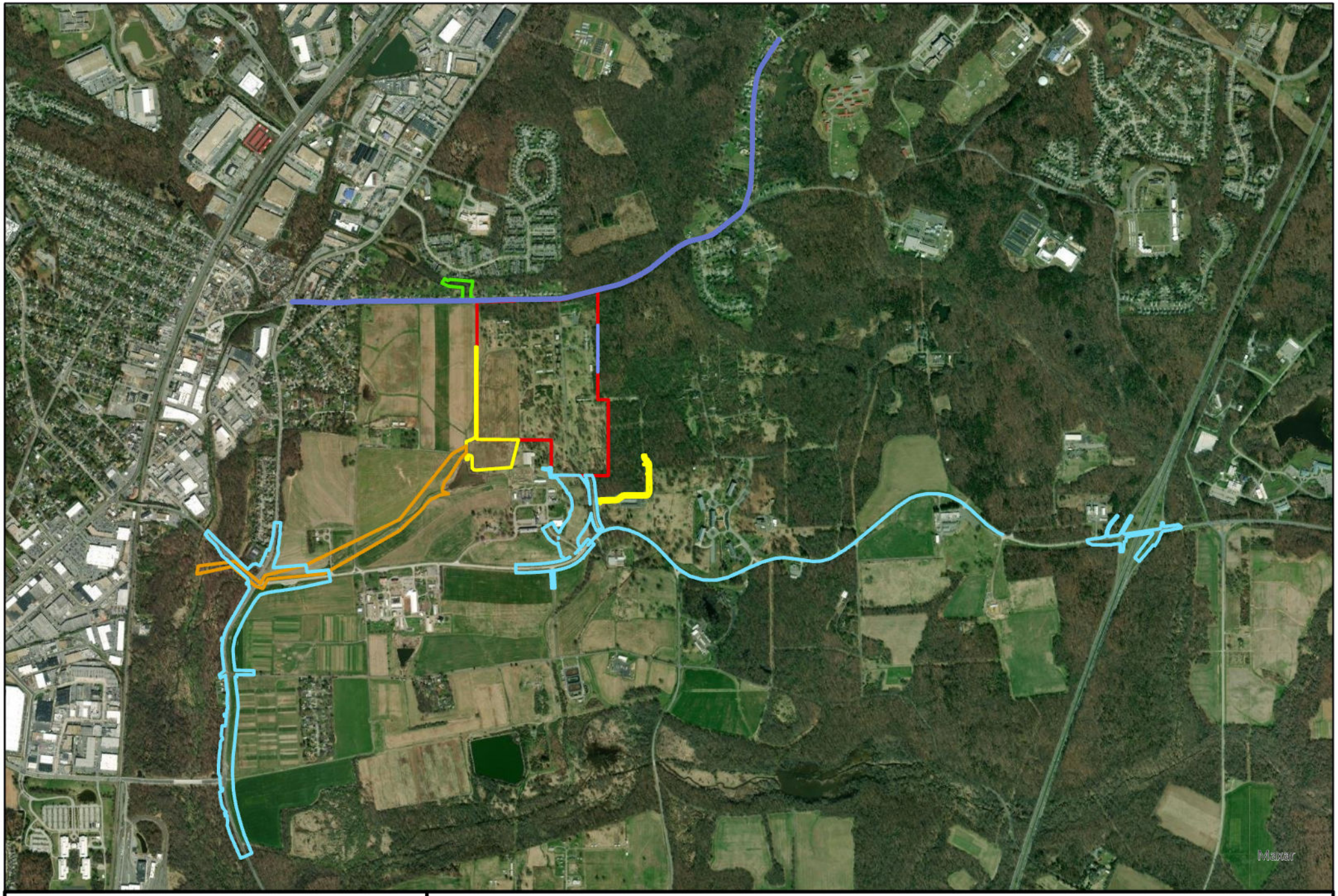
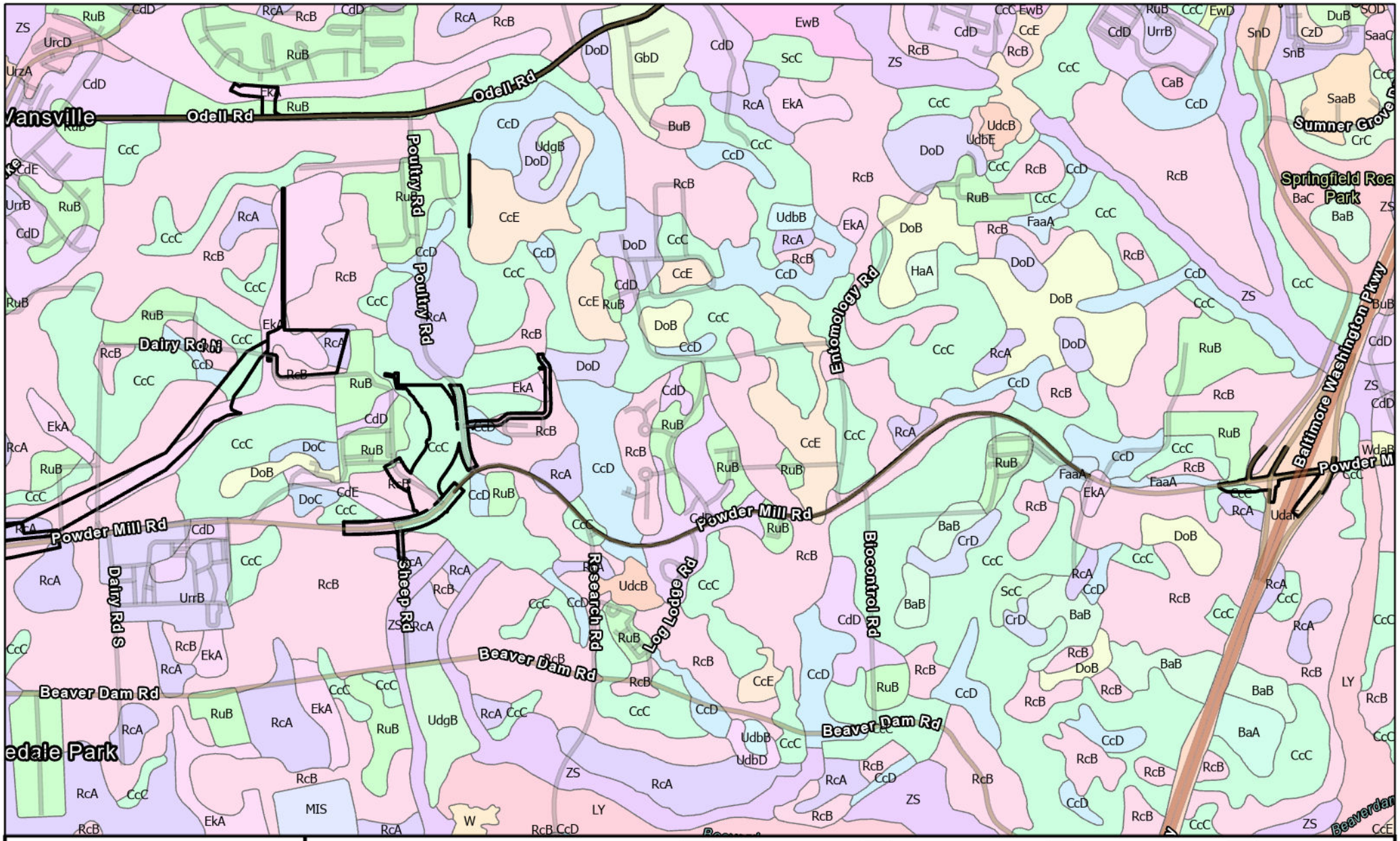

BEP Traffic and Utility Mitigation
Vicinity Map
2023
N
0
0.4
Miles
Traffic Improvements
Utility Work
Sanitary Sewer Alternative 1
Sanitary Sewer Alternative 2
CPF Improvements
BEP Boundary



BEP Traffic and Utility Mitigation Soils Map (East) 2023

N

0 0.2 Miles

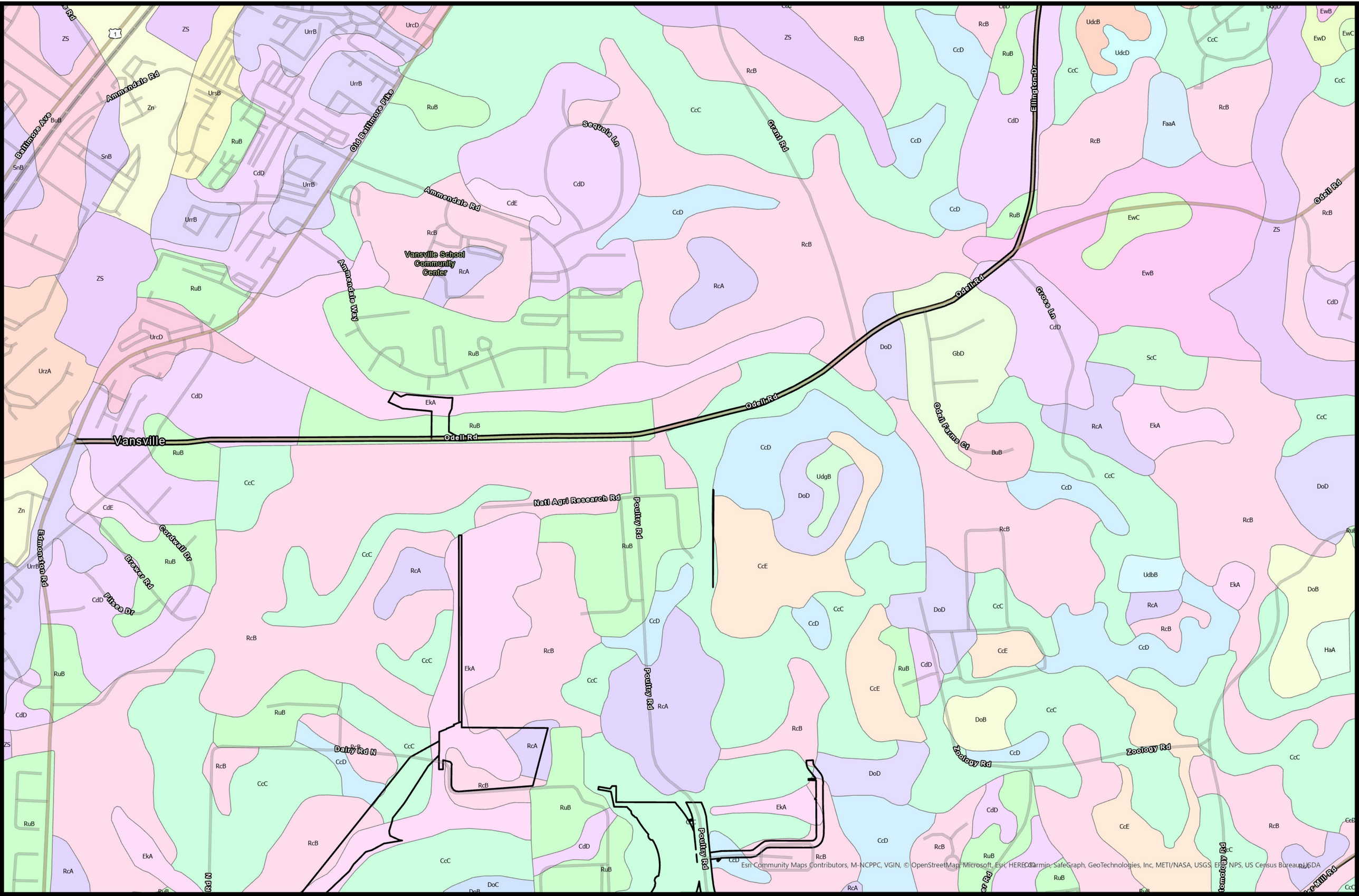
Limit of Disturbance

Layer

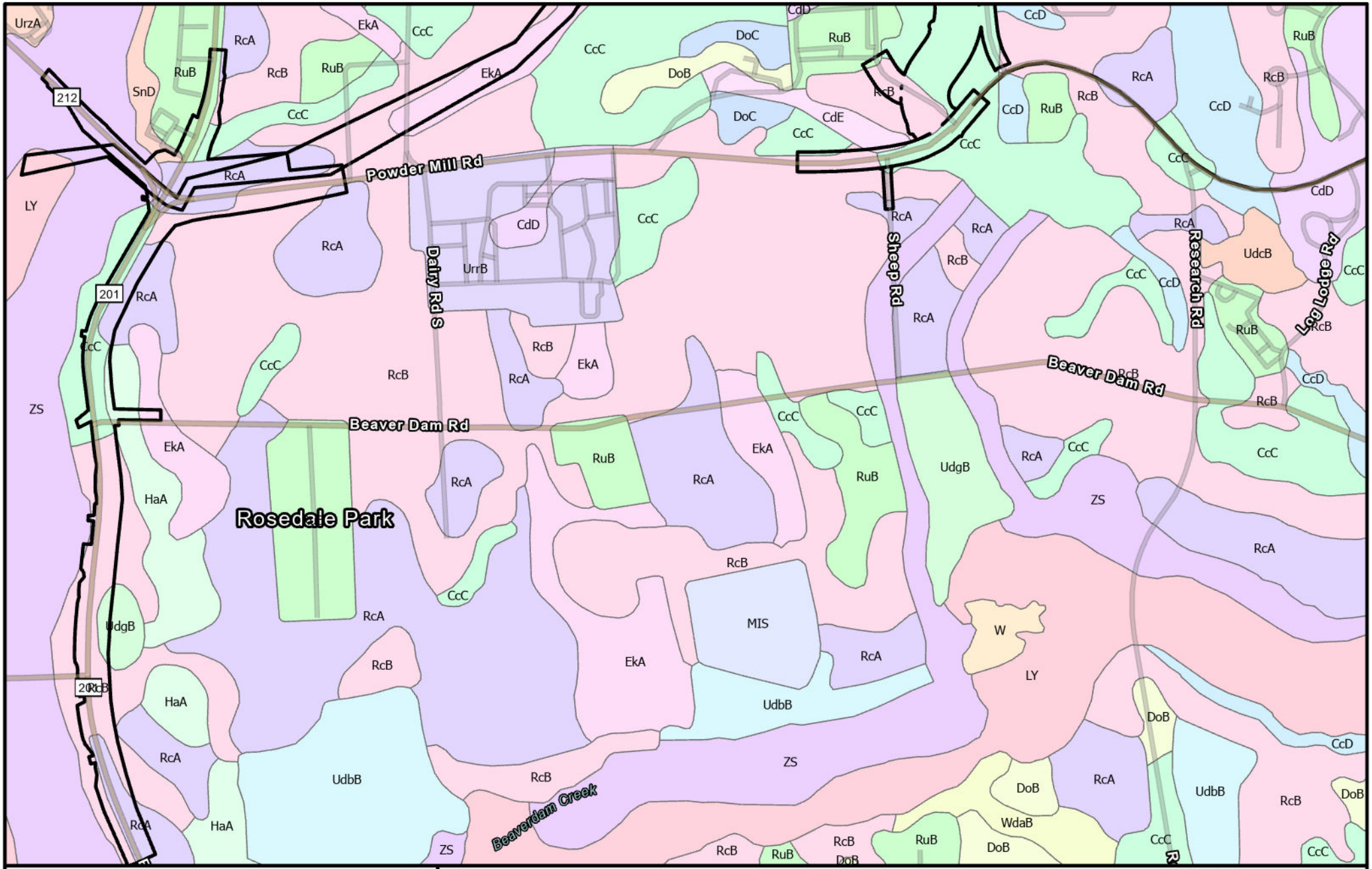
Soil Type

BaA
BaB
BaC
BuB
CaB
CcC
CcD
CcE
CdD
CdE
CrC
CrD
CzD
DoB
DoC
DoD
DuB
EkA
EwB
EwD
FaaA
GbD
HaA
LY
MIS
RcA
RcB
RuB
SOD
SaaB
SaaC
ScC
SnB
SnD
UdaF
UdbB
UdbD
UdbE
UdcB
UdgB
UrcD
UrrB
UrzA
W
WdaB
ZS

BEP Traffic and Utility Mitigation Soils Map (North/Northwest) 2023



Layer
Soil Type



BEP Traffic and Utility Mitigation Soils Map (Southwest)

N

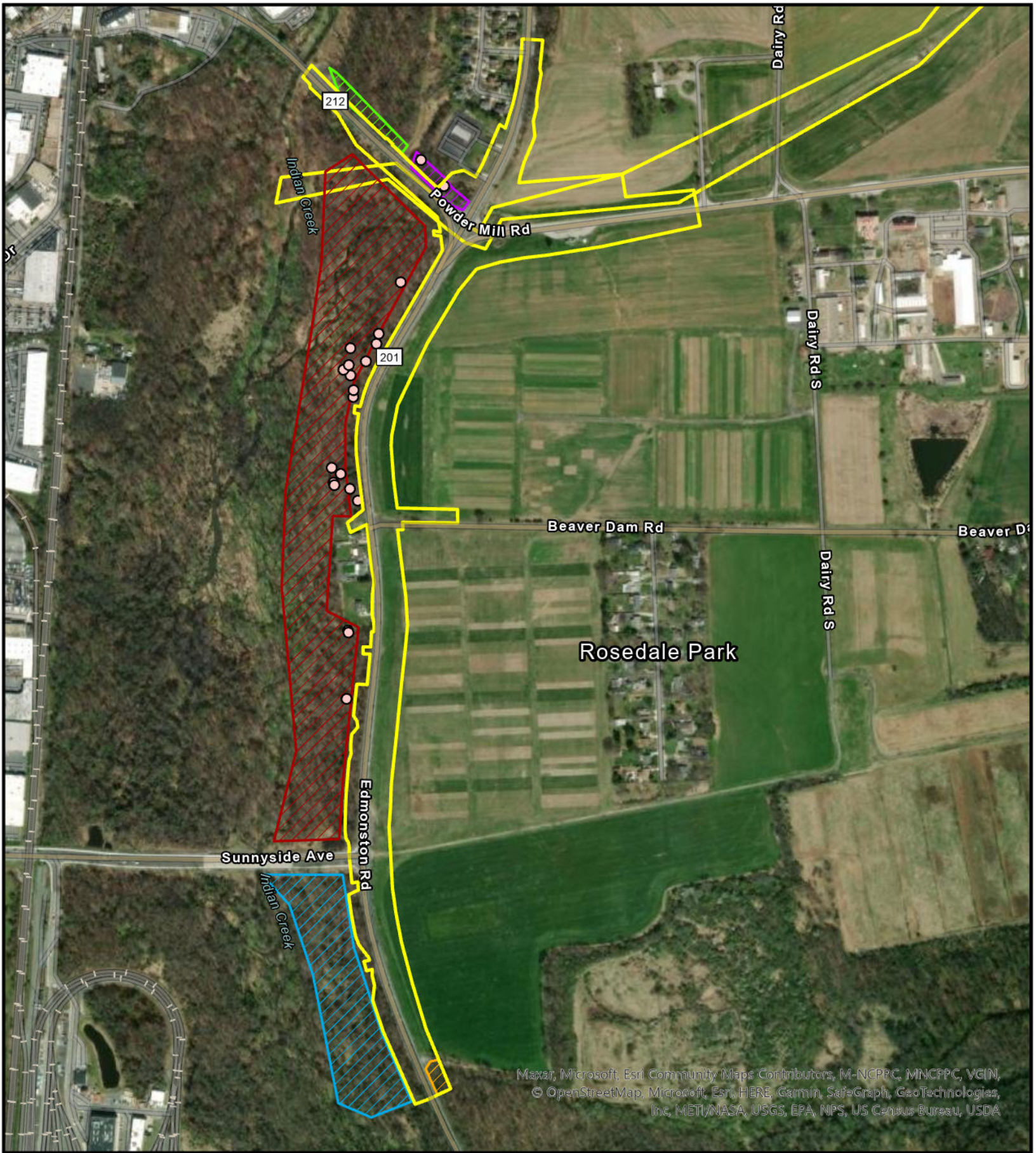
0 0.14 Miles

Limit of Disturbance

Layer

Soil Type

- CcC
- CcD
- CdD
- CdE
- DoB
- DoC
- EkA
- HaA
- LY
- MIS
- RcA
- RcB
- RuB
- SnD
- UdbB
- UdcB
- UdgB
- UrrB
- UrzA
- W
- WdaB
- ZS

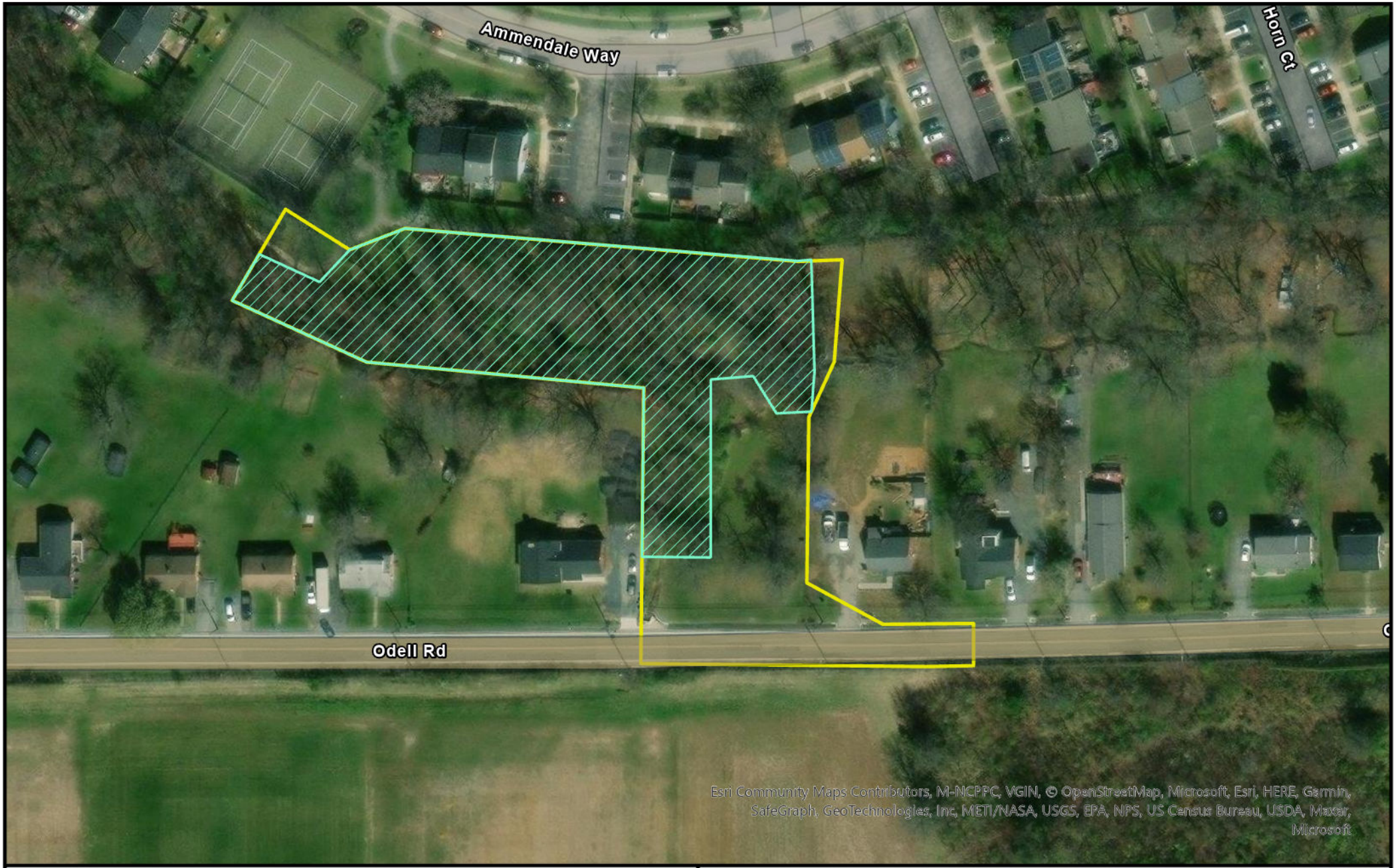


BEP Traffic Mitigation
Forest Stand Delineation 2023

N

350
US Feet

- Specimen Tree
- Project Area
- Stand T1
- Stand T2
- Stand T3
- Stand T4
- Stand T5



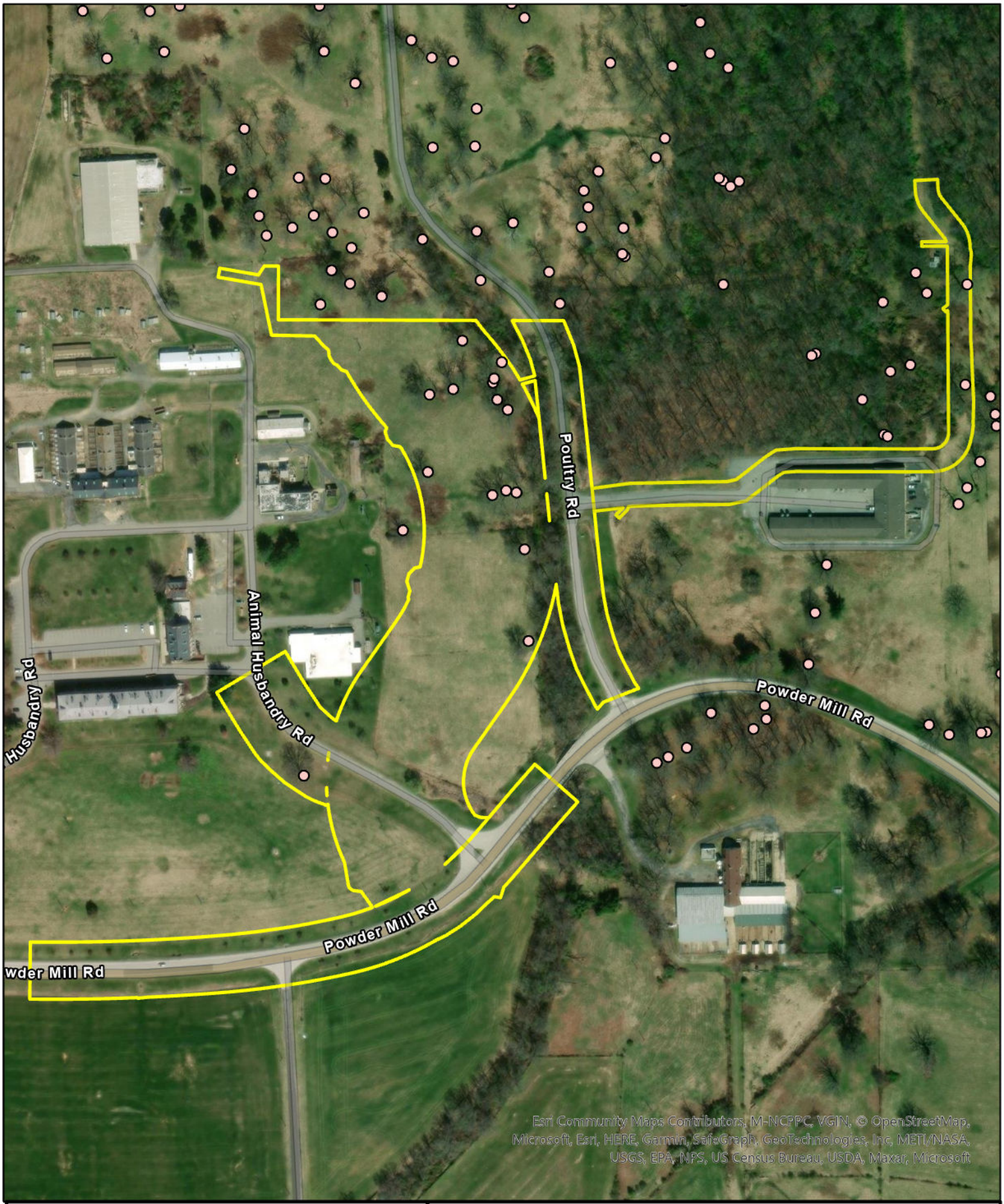
BEP Traffic Mitigation
Forest Stand Delineation 2023

N

0 50 100
US Feet

Project Area

Stand T6



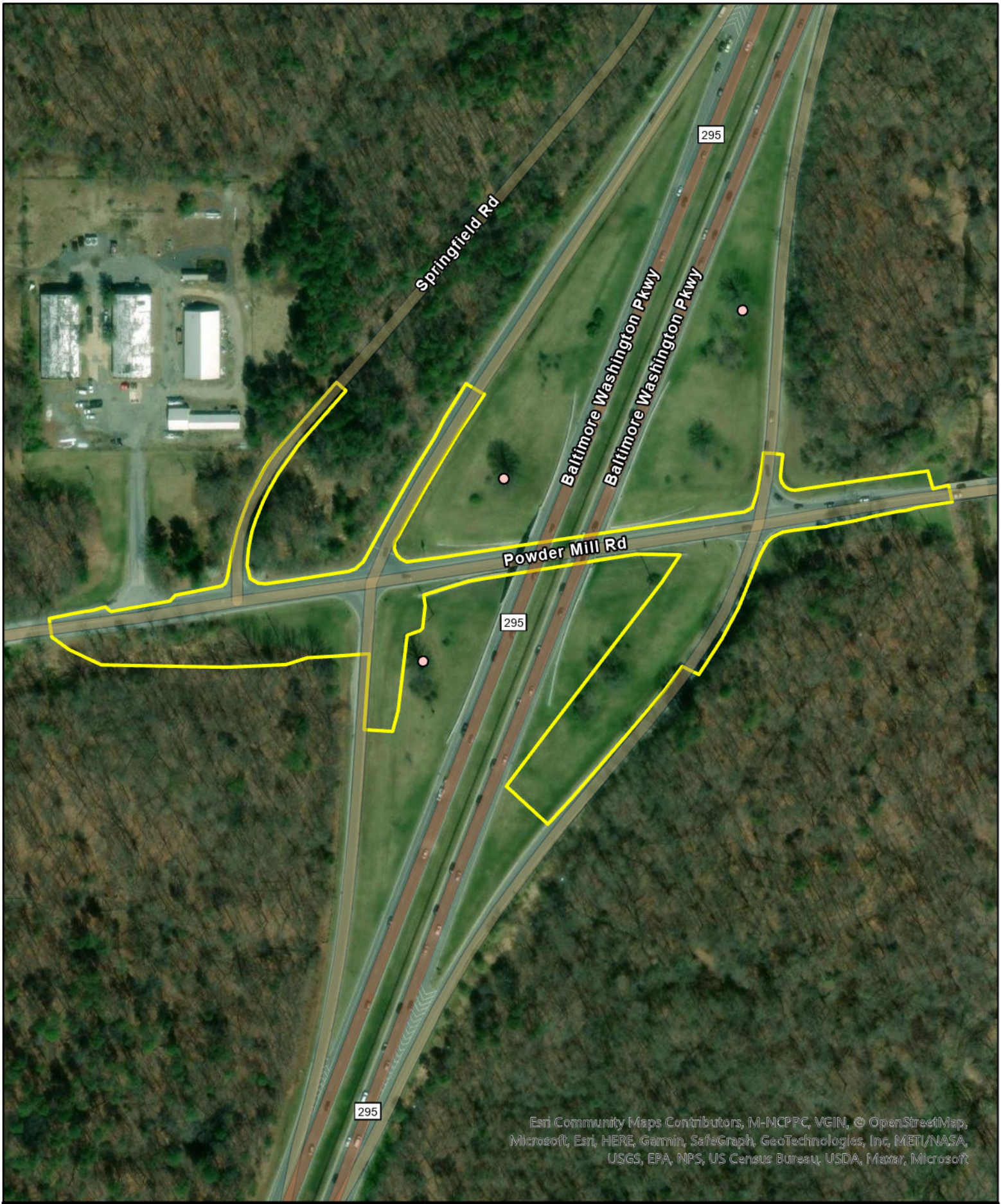
BEP Traffic Mitigation
Specimen Trees 2023

N

0 360 US Feet

Specimen Tree

Project Area



BEP Traffic Mitigation
Specimen Trees 2023

N

0 160
US Feet

Specimen Tree
Project Area

APPENDIX C

Specimen Tree List

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BEP Traffic Mitigation Specimen Trees			
BEP Specimen Tree	Scientific Name	Common Name	Diameter Breast Height (Inches)
1	*Quercus phellos*	Willow Oak	40
2	*Quercus alba*	White Oak	49
3	*Acer rubrum*	Red Maple	49
4	*Liquidambar styraciflua*	Sweetgum	35
5	*Liquidambar styraciflua*	Sweetgum	35
6	*Liquidambar styraciflua*	Sweetgum	38
7	*Liquidambar styraciflua*	Sweetgum	35
8	*Liquidambar styraciflua*	Sweetgum	33
9	*Liquidambar styraciflua*	Sweetgum	31
10	*Liquidambar styraciflua*	Sweetgum	33
11	*Liquidambar styraciflua*	Sweetgum	31
12	*Liquidambar styraciflua*	Sweetgum	31
13	*Quercus alba*		34.5
14	*Liquidambar styraciflua*	Sweetgum	32
15	*Liquidambar styraciflua*	Sweetgum	37
16	*Liquidambar styraciflua*	Sweetgum	35
17	*Quercus alba*	White Oak	39
18	*Quercus alba*	White Oak	38