

WETLAND AND WATERS DELINEATION REPORT

## I-95 ETL NORTHBOUND EXTENSION

**COWENTON AVENUE TO NEW FORGE ROAD** 

**Baltimore County, Maryland** 

JMT Project Number 13-0770-054

#### Submitted to:

Maryland Transportation Authority

July 2020



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## 1.0 INTRODUCTION

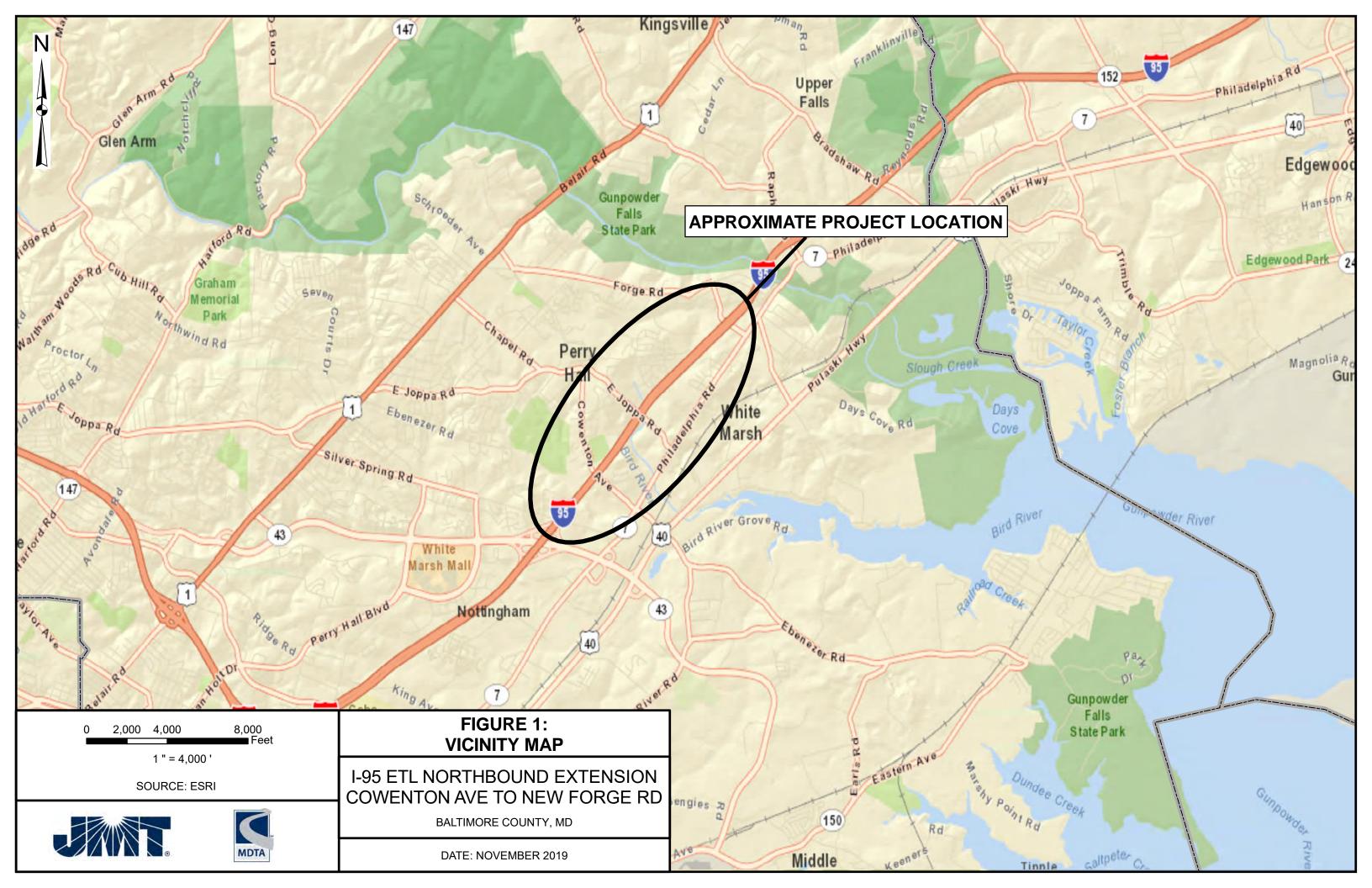
#### 1.1 PROJECT DESCRIPTION

The Maryland Transportation Authority (MDTA) owns, operates, and maintains a 50-mile portion of I-95 in Maryland, beginning north of Baltimore City and extending to the Delaware state line. To address safety and congestion concerns, MDTA proposes to construct the I-95 Express Toll Lanes (ETL) Northbound Extension Project along I-95 from north of MD 43 in Baltimore County to MD 24 in Harford County (**Figure 1**) in two separate phases that have 'independent utility.' The purpose of the proposed improvements is to address capacity and safety needs within the project limits and thereby improve access, mobility and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles. The project includes a northbound two lane ETL extension from MD 43 to south of MD 152, a northbound auxiliary lane from MD 152 to MD 24/MD 924, overpass reconstruction, and two noise walls along northbound I-95. The proposed improvements will be constructed in multiple phases while safely maintaining traffic. Minor impacts to environmental resources are anticipated and will be mitigated in coordination with federal/state regulations.

The stretch of I-95 that is the focus of this report extends from the Cowenton Avenue overpass to the New Forge Road overpass, which is part of Phase I of the I-95 ETL Northbound Extension Project. This area was previously delineated during planning of the I-95 ETL Section 100 project. A Jurisdictional Determination, dated July 30, 2004, was completed by the U.S. Army Corps of Engineers (USACE) within the area, and unavoidable impacts to wetlands and waterways under the full build-out of the I-95 ETL Section 100 project were authorized by USACE under Department of the Army Permit No. CENAB-OP-RMN (MD MTA/I-95, SECTION 100/RD XINGS) 06-6011-18 and the Maryland Department of the Environment (MDE) under Nontidal Wetlands and Waterways Permit No. 05-NT-0357/200660011. Construction of the I-95 ETL Section 100 project in this area has been ongoing since these permits were issued.

Under contract with MDTA, Johnson, Mirmiran, & Thompson (JMT) reviewed published information and conducted field investigations, along with Wallace Montgomery, of the Study Area to confirm and update previously delineated resources due to the amount of time that has passed since the previous delineation and Jurisdictional Determination (dated 2004). JMT and Wallace Montgomery were also tasked to delineate any new wetlands and waterways within the MDTA right of way. This report describes the new, updated, and confirmed wetlands and waters delineated. A preliminary Jurisdictional Determination of the revised delineation was conducted by USACE and MDE on May 29, 2020; this report has been revised to reflect the resulting determinations.



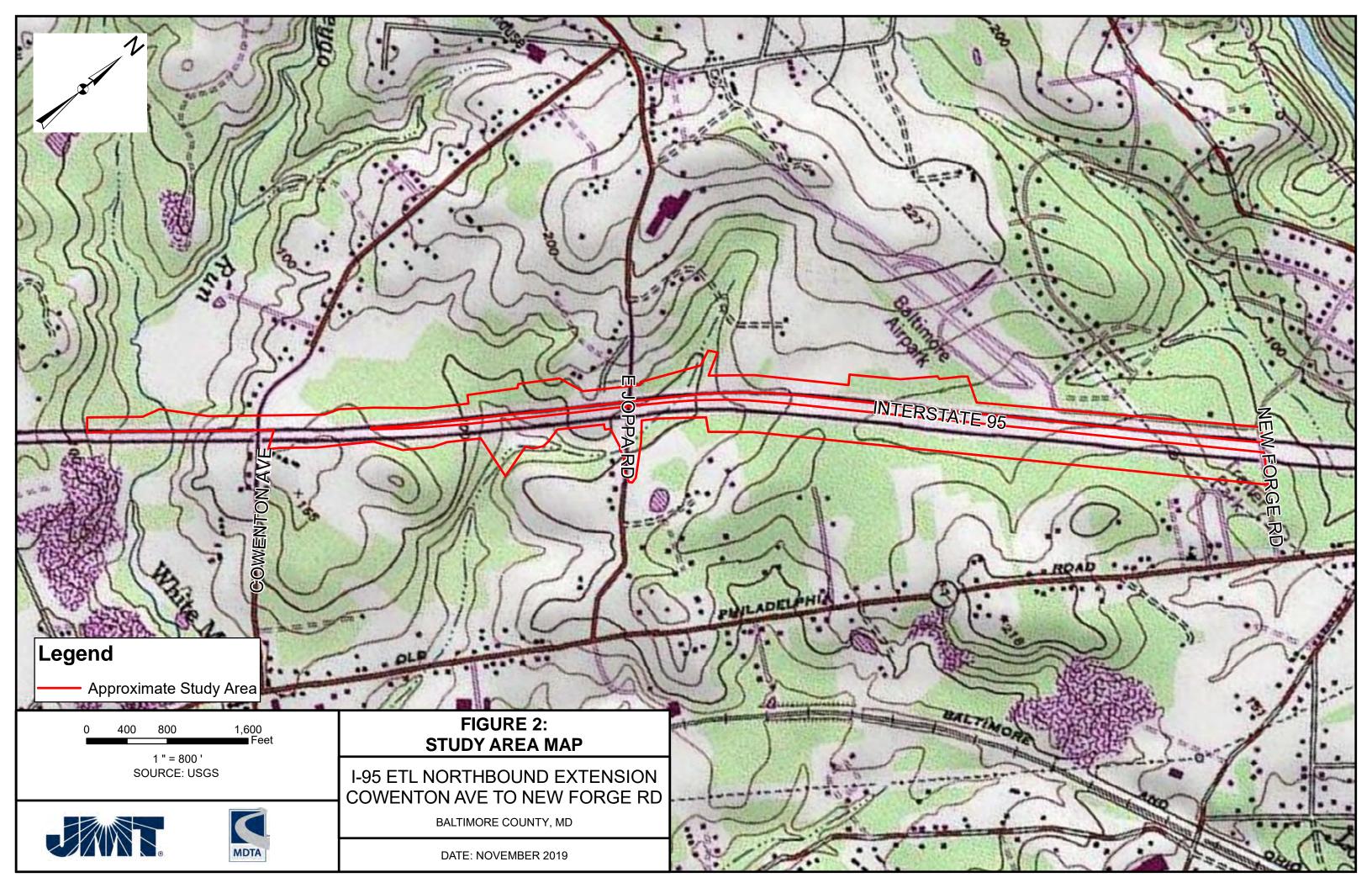


## 1.2 STUDY AREA DESCRIPTION

The Study Area is located along the northbound and southbound sides of I-95, within the MDTA right of way, in Baltimore County (**Figure 2**). The Study Area extends from the Cowenton Avenue overpass to the New Forge Road overpass and is mostly forested, exempting areas of existing roadways and shoulders. The southern portion of the Study Area lies within the Northern Atlantic Slope Diversified Farming Region of the Northern Coastal Plain Land Resource Area (MLRA 148). The northern portion of the Study Area lies within the Northern Atlantic Slope Diversified Farming Region of the Northern Piedmont (MLRA 149A). The Study Area is divided between two Maryland Department of Environment (MDE) 8-Digit Watersheds, Bird River (02130803) and Lower Gunpowder Falls (02130802).

Geologically, the Study Area is in the Piedmont Plateau Physiographical Province and falls within the Baltimore Complex and Patuxent, Arundel Clay, and Patapsco formations.





## 2.0 METHODOLOGY

#### 2.1 DESKTOP INVESTIGATION

#### **Pre-Field Desktop Analysis**

A review of published information was conducted to identify known wetlands and waterways within the Study Area (**Table 2.1**).

Table 2.1 References for Identification of Jurisdictional Wetlands and Waterways

Document	Date	Reference	Related Report Figure
USGS 7.5 X 7.5 Minute Quadrangle for White Marsh, MD	2016	ngmdb.com (topoView)	Figure 2
Digital National Wetlands Inventory	1992	USFWS National Wetlands Inventory (NWI) via MD iMAP	Figure 3
MD Department of Natural Resources	1995	Maryland Wetlands – Wetlands, Polygon (Department of Natural Resources)	Figure 3
MD Hydrology/Waterbodies	Various	MD iMAP (GIS and Data Portal)	Figure 3
FEMA Digital Flood Insurance Rate Map for Baltimore County	2008, 2014	Federal Emergency Management Agency (FEMA)	Figure 4
Soil Survey for Baltimore County	2016	United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey	Figure 5
Section 100: I-95, I-895(N) Split to North of MD 43, Wetland Delineation Report	2003	Maryland Transportation Authority	N/A

#### 2.2 FIELD INVESTIGATION

Field investigations were conducted in August and December 2017 to confirm the published information and field delineate wetlands and waterways within the Study Area. Follow-up field investigations were conducted in August 2019 to collect additional information for delineated waters. All technical fieldwork was performed according to the *U.S. Army Corps of Engineers Wetland Delineation Manual, Y-87-I* (Environmental Laboratory, 1987). Both the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0*) (USACE, 2010) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0*) (USACE, 2012) were used during the field investigations. The Corps manual outlines the three-parameter approach for delineating wetlands. All three parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) must be confirmed to classify an area as a wetland, unless the site



is atypical (disturbed) or a problem area. Each wetland and waterway were classified into systems according to *Classification of Wetlands and Deep Water Habitats of the United States* (Cowardin, et al., 1979). Plant indicator status was determined using the *United States Department of Agriculture Natural Resources Conservation Service Plants Database* (USDA-NRCS, 2017). Soil samples were collected at each wetland and upland sample point, and soil colors were described in the field using a *Munsell Soil Color Charts* manual (Munsell® Color, 2000). An auger was used to delineate between hydric and non-hydric soils.

Wetlands and waterways within the Study Area were delineated by a team of environmental scientists from JMT and Wallace Montgomery. JMT delineated the northbound section of I-95, while Wallace Montgomery delineated the southbound section of I-95. Wetland and upland sample plots, along with wetland boundaries, were flagged with pink survey tape and each flag was labeled. Boundary point positions were surveyed using a global positioning system (GPS) capable of sub-meter accuracy and placed onto aerial mapping.

Wetland (hydrophytic) vegetation was determined using the USACE *National Wetland Plant List* (NWPL) (Lichvar, *et al.* 2016). This document assigns a wetland indicator status to plants based on how frequently they occur in wetlands. The NWPL wetland indicator status and definitions are listed in **Table 2.2**.

**Table 2.2 Wetland Plant Indicator Definitions** 

Wetland Indicator Status	Definition
Obligate Wetland (OBL)	Almost always occur in wetlands
Facultative Wetland (FACW)	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Occur in wetlands or non-wetlands
Facultative Upland (FACU)	Usually occur in non-wetlands, but may occur in wetlands
Obligate Upland (UPL)	Almost never occur in wetlands

Source: Lichvar et al. 2016. The National Wetland Plant List.

An auger was used to delineate between hydric and non-hydric soils.



## 3.0 FINDINGS

#### 3.1 PUBLISHED INFORMATION

JMT reviewed published information to identify known site conditions, such as the presence of wetlands, waterways, floodplains and critical areas within the Study Area.

The White Marsh, MD Topographic 7.5 x 7.5 Minute Quadrangle (USGS, 2016) depicts two mapped waterways in the Study Area: Honeygo Run and Lightwoods Creek (**Figure 2**).

Maryland Wetlands – Wetlands, Polygon, (MD DNR, 2019) depicts two mapped palustrine wetlands and two riverine system within the Study Area.

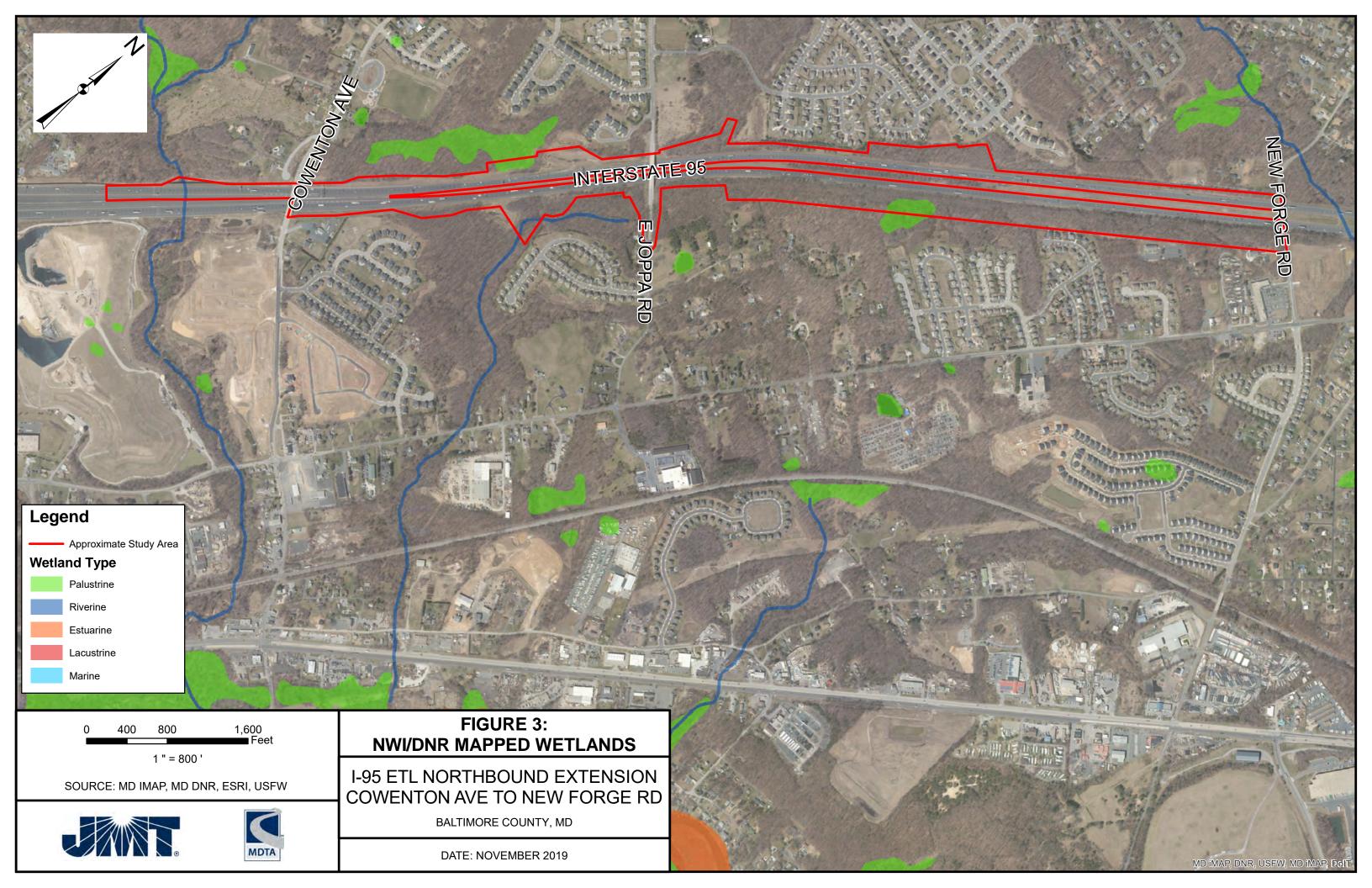
The Digital MDNR NWI Map of the *White Marsh, MD Quadrangle*, (USFWS, 1992) depicts two mapped waterways, Honeygo Run and Lightwoods Creek, and two mapped palustrine wetlands within the Study Area (**Figure 3**).

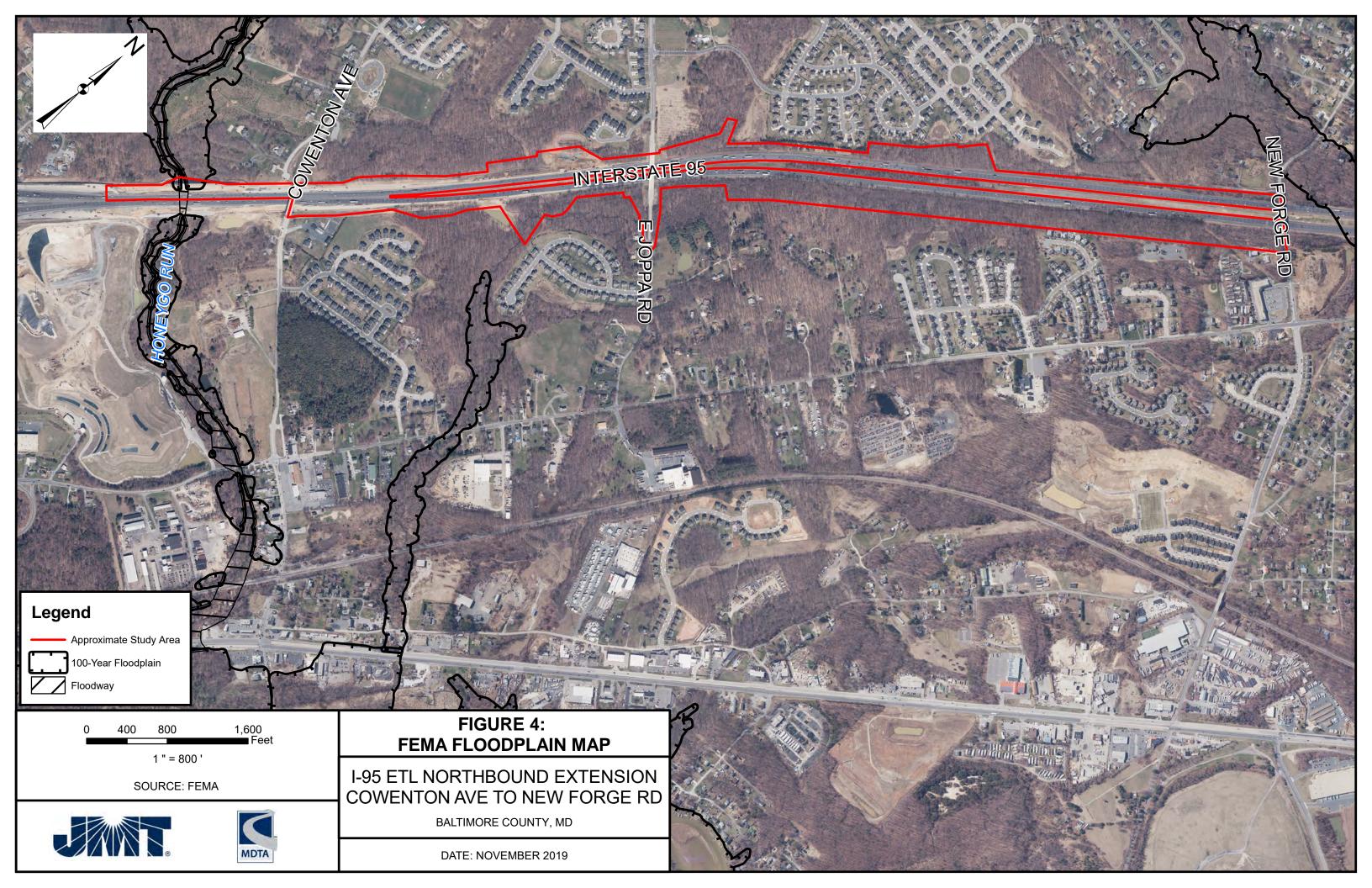
The FEMA Flood Insurance Rate Map (FIRM) for Baltimore County, Maryland (FEMA, 2008 and 2014) depicts two portions of the Study Area within the 100-Year Floodplain, one of which is within the Floodway (Firm Panels #2400100290F & #2400100295G) (**Figure 4**).

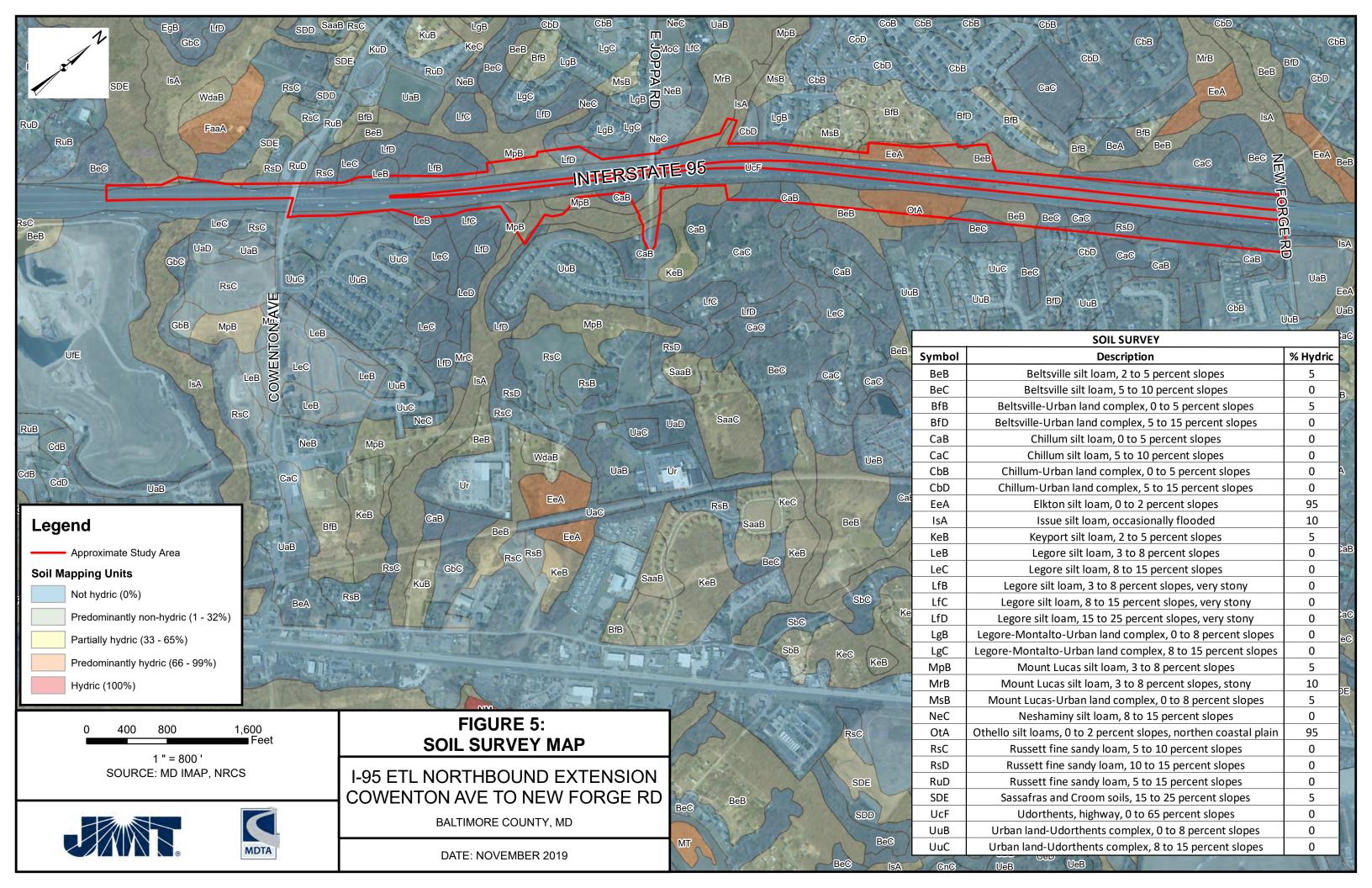
The Web Soil Survey of Baltimore County, Maryland, (USDA-NRCS, 2016) was referenced for all the soil survey data collected for this memorandum. The soil map indicates that 30 soil mapping units occur within the Study Area. The soils are shown on **Figure 5**.

The wetland delineation report previously completed for the I-95 ETL Section 100 project (MDTA, 2003) documented 16 jurisdictional wetlands and 29 waterways within the current Study Area.









## 3.2 RARE, THREATENED, AND ENDANGERED SPECIES

MDTA sent a letter to the Maryland Department of Natural Resources (MDNR) Wildlife and Heritage Service to determine if state-listed rare, threatened or endangered (RTE) species are present in the Study Area. MDNR Wildlife and Heritage responded in a letter dated August 22, 2017 that there are no official state-or federally-listed plant or animal species within the Study Area (**Appendix A**).

MDTA sent a letter to MDNR Environmental Review Unit (ERU) to determine the presence of anadromous finfish or other fish in the Study Area. MDNR ERU responded in a letter dated September 13, 2017 that there are anadromous fish within Gunpowder Falls (classified as Use IV) and Little Gunpowder Falls (classified as Use III); however, MDNR ERU's response was in reference to a larger Study Area and the Study Area that is the subject of this report will not impact these waters (**Appendix A**).

Through coordination with USFWS, no federally-listed threatened or endangered species are known to exist within the Study Area other than occasional transient individuals. The USFWS Online Certification Letters documenting these results, dated October 3, 2019, can be found in Appendix A. It should be noted that while the Northern Long-Eared Bat (*Myotis septentrionalis*) was flagged by the USFWS system, per the USFWS Chesapeake Bay Field Office (CBFO) website, the only areas in Maryland with documented maternity roosts are in Garrett and Allegany Counties. This project is located in Baltimore County, Maryland and would therefore not be located within 150 feet of a known maternity roost tree or within 0.25 miles of a known hibernaculum. However, the project would result in more than 15 acres of clearing, therefore, coordination with CBFO is currently ongoing.

## 3.3 CULTURAL AND HISTORICAL RESOURCE COORDINATION

MDTA sent a letter to the Maryland Historic Trust (MHT) to determine if historic properties will be affected. MHT responded in a letter dated August 22, 2017 stating no historic properties will be affected by the project (**Appendix A**).

#### 3.4 FIELD DELINEATION

Field investigations were conducted in August and December 2017 to confirm and update the previous delineation and determine the presence of new wetlands and waterways within the Study Area. Follow-up field investigations were conducted in August 2019 to collect additional information for delineated waterways on the northbound side. On the northbound side of I-95, 12 non-tidal wetlands and 24 potential waterways were identified. On the southbound side, eight non-tidal wetlands and eight potential waterways were identified.

Wetland Determination Data Forms for the representative wetland and upland sample plots were completed for both new wetlands identified and wetlands that were previously delineated under the I-95 ETL Section 100 project but have since changed. Locations of the delineated systems



are shown on the Delineated Resource Maps in **Appendix B**. For wetlands that were previously delineated under the I-95 ETL Section 100 project, and whose boundaries were confirmed to still be accurate, no new Wetland Determination Data Forms were completed. Instead, the data forms from the Section 100 wetland delineation report (MDTA, 2003) are being used to characterize these wetlands. Datasheets were completed for waterways on the northbound side of I-95; however, datasheets were not completed for waterways on the southbound side. All relevant data forms are presented in **Appendix C**. Due to the location of this site along the boundary between geographic regions, both Atlantic Coastal Plain and Eastern Mountain Piedmont forms were used for the new and modified wetland delineations. Photographic documentation of the new and modified systems is presented in **Appendix D**. The wetlands and waterways descriptions below are presented in the order they are located (south to north) along the highway.

A preliminary Jurisdictional Determination was conducted by MDE and USACE on May 29, 2020, to review the delineated resources discussed below. The report has been revised to reflect the outcome of that meeting. For more detailed information, please see the meeting minutes presented in **Appendix E**.

#### 3.4.1 NORTHBOUND WETLAND DESCRIPTIONS

#### **BRBR-WET21**

BRBR-WET21 is a palustrine scrub-shrub wetland (PSS) located in the southeastern portion of the Study Area on the northbound side of I-95 (**Appendix B, Map 2**). The wetland is approximately 154 square feet (0.003 acres) in size. Primary hydrologic indicators included surface water. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included spicebush (*Lindera benzoin*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), and whitegrass (*Leersia virginica*, FACW). Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. BRBR-WET21 was previously delineated under the I-95 ETL Section 100 project.

#### **WET D**

WET D is a palustrine forested wetland (PFO) located in the southeastern portion of the Study Area on the northbound side of I-95 (**Appendix B, Map 2**). The wetland is approximately 2,760 square feet (0.063 acres) in size. Primary hydrologic indicators included surface water, high water table, saturation, algal mat or crust, and water-stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included green ash, sweetgum (*Liquidambar styraciflua*, FAC), red maple (*Acer rubrum*, FAC), red oak (*Quercus rubra*, FACU), spicebush, multiflora rose (*Rosa multiflora*, FACU), lurid sedge (*Carex lurida*, OBL), whitegrass, poison ivy (*Toxicodendron radicans*, FAC), and Virginia creeper (*Parthenocissus quinquefolia*, FACU). Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix and Redox Dark Surface Soil Indicators. This wetland feature is not shown on NWI or DNR GIS mapping.



#### **BRBR-WET22-PEM**

BRBR-WET22-PEM is a palustrine emergent wetland (PEM) located to the northwest of WET D on the northbound side of I-95 (**Appendix B, Maps 2-3**). The wetland is approximately 6,884 square feet (0.158 acres) in size. Primary hydrologic indicators included surface water. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included whitegrass. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Soil Indicator. BRBR-WET22 was previously delineated under the I-95 ETL Section 100 project. This wetland feature is not shown on NWI or DNR GIS mapping.

#### **BRBR-WET22-PSS**

BRBR-WET22-PSS is a PSS wetland located to the north of BRBR-WET22-PEM on the northbound side of I-95 (**Appendix B, Map 3**). The wetland is approximately 966 square feet (0.022 acres) in size. Primary hydrologic indicators included surface water and saturation. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included green ash, poison ivy, and whitegrass. Soils in the sample plot are hydric, meeting the criteria for the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

#### WET F

WET F is a PEM wetland located to the south of East Joppa Road on the northbound side of I-95 (**Appendix B, Map 3**). The wetland is approximately 364 square feet (0.008 acres) in size. Primary hydrologic indicators included surface water, high water table, and saturation. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included green ash, sweetgum, rice cutgrass (*Leersia oryzoides*, OBL), Japanese stilt grass (*Microstegium vimineum*, FAC), and Japanese honeysuckle (*Lonicera japonica*, FACU). Soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

#### **WET G**

WET G is a PFO wetland located in the middle of the Study Area along the northbound side of I-95 (**Appendix B, Maps 3 & 4**). The wetland is approximately 5,621 square feet (0.129 acres) in size. Primary hydrologic indicators included surface water, high water table, saturation, water marks, and water-stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included red maple, sweetgum, whitegrass, and poison ivy. Soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

#### **WET H**

WET H is a PEM wetland located to the southwest of WUS M along the northbound side of I-95 (**Appendix B, Map 4**). The wetland is approximately 1,317 square feet (0.03 acres) in size. Primary hydrologic indicators included surface water, high water table, saturation, and water-



stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included woolgrass (*Scirpus cyperinus*, OBL) and soft rush (*Juncus effusus*, OBL). Soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

#### WET I

WET I is a PFO wetland located on the northbound side of I-95 at the southwestern end of BRBR-WET1 (**Appendix B, Map 4**). The wetland is approximately 292 square feet (0.006 acres) in size. Primary hydrologic indicators included water-stained leaves. The vegetation within the wetland is hydrophytic. The dominant vegetation within the sample plot included black gum (*Nyssa sylvatica*, FAC), highbush blueberry (*Vaccinium corymbosum*, FACW), and soft rush. Soils within the sample plot are hydric, meeting the Redox Dark Surface Soil Indicator. WET I is an expansion of BRBR-WET1, which was previously delineated under the I-95 ETL Section 100 project. This wetland feature is shown on NWI and DNR GIS mapping.

#### **BRBR-WET1**

BRBR-WET1 is a PFO wetland located to the southeast of GPJR-WUS2A along the northbound side of I-95 (**Appendix B, Maps 4-5**). The wetland is approximately 67,307 square feet (1.545 acres) in size and was originally delineated under the I-95 ETL Section 100 project. JMT confirmed the accuracy of the previously delineated boundary; therefore, a new data form was not completed. A data form was not included in the 2003 wetland delineation report for Section 100 and, consequently, no data form for this wetland is included in **Appendix C**. This feature is shown on NWI and DNR GIS mapping.

#### **GPJR-WET1**

GPJR-WET1 was a PFO wetland located in the northeastern portion of the Study Area on the northbound side of I-95 that has since been impacted by construction (**Appendix B, Map 5**). The wetland was approximately 3,431 square feet (0.079 acres) in size and was originally delineated under the I-95 ETL Section 100 project. JMT confirmed the accuracy of the previously delineated boundary; therefore, a new data form was not completed and the data form from the 2003 delineation is included in **Appendix C**. Primary hydrologic indicators included saturation in the upper 12 inches and drainage patterns. The vegetation within the wetland was hydrophytic. Dominant vegetation included red maple, sweet gum, black gum, arrow wood (*Viburnum recognitum*, FACW), roundleaf greenbrier (*Smilax rotundifolia*, FAC), and jewelweed (*Impatiens capensis*, FACW). Soils within the sample plot were hydric. This wetland feature was not shown on NWI or DNR GIS mapping.

#### **WET J**

WET J was a PFO wetland located in the northeastern portion of the Study Area on the northbound side of I-95 that has since been impacted by construction (**Appendix B, Map 5**). The wetland was approximately 3,716 square feet (0.085 acres) in size. Primary hydrologic indicators observed included surface water, saturation, and water-stained leaves. The



vegetation within the wetland was hydrophytic. The dominant vegetation within the sample plot included red maple, sweetgum, jack-in-the-pulpit (*Arisaema triphyllum*, FACW), false nettle (*Boehmeria cylindrica*, FACW), poison ivy, bulrush (*Scirpus atrovirens*, OBL), Japanese stiltgrass, and whitegrass. Soils within the sample plot were hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature was not shown on NWI or DNR GIS mapping.

#### **WET K**

WET K was a PEM and palustrine unconsolidated bottom (PUB) wetland located along the northbound side of I-95 south of New Forge Road that has since been impacted by construction (**Appendix B, Map 6**); it was approximately 511 square feet (0.012 acres) in size. Primary hydrologic indicators included surface water and saturation. The vegetation within the wetland was hydrophytic. The dominant vegetation within the sample plot included sweetgum, Japanese stilt grass, and whitegrass. Soils within the sample plot were hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature was not shown on NWI or DNR GIS mapping.

#### 3.4.2 NORTHBOUND WATERWAYS DESCRIPTIONS

#### **BRBR-WUS1**

BRBR-WUS1 is a perennial stream located on the northbound side of I-95, north and south of East Joppa Road (**Appendix B, Maps 2-3**). The channel is a continuation of the channel delineated as BRBR-WUS7 and flow continues outside of the Study Area to the south. BRBR-WUS1 is a tributary to the Bird River, a traditional navigable water (TNW). Bank slopes are 3:1 and range between 3 and 5 feet in height; at the time of delineation, flow within the channel was 3 to 6 inches deep. The substrate consists of cobble, gravel, and sand. BRBR-WUS1 was previously delineated under the I-95 ETL Section 100 project.

#### **WUS Q**

WUS Q is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The channel originates at the boundary of BRBR-WET21 and flows into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 1 and 3 feet in height; at the time of delineation no flow was observed within the channel. The substrate consists of cobble, gravel, sand, silt, and vegetation.

#### **WUS R**

WUS R is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The channel originates to the north of WUS Q and flows southeast into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and 1 foot in height; at the time of delineation no flow was observed within the channel. The substrate consists of gravel and sand.



#### **BRBR-WUS8**

BRBR-WUS8 is a perennial stream located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates from BRBR-WUS11, carried under I-95 through a cross culvert, and flows southeast into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 to vertical and range between 2 and 4 feet in height; at the time of delineation flow in the channel was 2 to 4 inches deep. The substrate consists of sand, silt, and muck. BRBR-WUS8 was previously delineated under the I-95 ETL Section 100 project.

#### **WUSS**

WUS S is an intermittent stream located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates from a structure that appears to be associated with a nearby underground water line and flows northeast into BRBR-WUS8, a tributary to the Bird River, a TNW. Bank slopes are 4:1 and range between 0 and 1 foot in height. At the time of delineation flow within the channel was 1 to 2 inches deep. The substrate consists of silt, vegetation, and muck.

#### **BRBR-WUS7**

BRBR-WUS7 is a perennial stream located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2-3**). The channel is a continuation of the channel delineated as BRBR-WUS1 northeast of East Joppa Road and flows southwest into the segment of BRBR-WUS1 located south of BRBR-WUS8. BRBR-WUS7 is a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 2 and 4 feet in height; at the time of delineation flow within the channel ranged between 2 to 18 inches deep. The substrate consists of sand, silt, gravel, cobble, and muck. BRBR-WUS7 was previously delineated under the I-95 ETL Section 100 project.

#### **WUS G**

WUS G is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates at the boundary of WET D and flows south outside of the Study Area into BRBR-WUS7, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 3 and 12 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of sand, silt, and vegetation.

#### **WUS H**

WUS H is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates at the boundary of WET D and flows south outside of the Study Area, eventually draining into BRBR-WUS7, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and 6 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, and silt.



#### **WUS F**

WUS F is an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The stream originates at the boundary of BRBR-WET22-PEM and drains into WET D. Bank slopes are 2:1 and range between 12 and 16 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of cobble, sand, silt, and muck.

#### **WUST**

WUS T is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 3**). The stream originates to the northeast of East Joppa Road and flows northeast, parallel to East Joppa Road, into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range between 2 and 4 feet in height; at the time of delineation there was no flow observed within the channel. The substrate consists of cobble, gravel, sand, and silt.

#### **BRBR-WUS2**

BRBR-WUS2 is an intermittent stream located on the northbound side of I-95 north of East Joppa Road (**Appendix B, Map 3**). The stream originates outside of the Study Area and flows southwest into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and 6 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, and silt. BRBR-WUS2 was previously delineated as BRBR-WUS2 under the I-95 ETL Section 100 project.

#### **WUS J**

WUS J is an intermittent stream located on the northbound side of I-95 north of East Joppa Road (**Appendix B, Maps 3-4**). The stream originates at a cross-culvert under I-95 located at the confluence with WUS K. It flows southwest and eventually discharges into BRBR-WUS1, a tributary to the Bird River, a TNW. Bank slopes are 2:1 with banks ranging between 3 to 8 feet in height; at the time of delineation flow within the channel was between 0 to 2 inches deep. The substrate consists of cobble, gravel, sand, silt, and muck.

#### **WUSL**

WUS L is an intermittent stream located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 3-4**). The stream originates from the boundary of WET G and flows southwest outside of the Study Area. Bank slopes are 4:1 and 4 inches in height; at the time of delineation no flow was observed within the channel. The substrate consists of sand, silt, and muck.

#### **WUS K**

WUS K is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 4**). The stream is a roadside swale that is fed by upland runoff and flows to the southwest into WUS J, a tributary to the Bird River, a TNW. Bank slopes are 2:1 and range



between 2 and 6 feet in height; at the time of delineation there was no flow observed in the channel. The substrate consists of cobble, gravel, sand, silt, and riprap.

#### **WUS M**

WUS M is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 4-5**). The stream originates at WET H and flows to the northeast into GPJR-WUS2A, which is a tributary to the Gunpowder River, a TNW. Bank slopes are 3:1 and range between 1 and 3 feet in height; at the time of delineation no flow was observed within the channel. The substrate consists of sand, silt, and muck.

#### **GPJR-WUS2A**

GPJR-WUS2A is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream is a continuation of WUS M and flows north into GPJR-WUS1 (a tributary to the Gunpowder River, a TNW), which flows into a culvert under I-95. Bank slopes are 2:1 and 3 feet in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, and silt. GPJR-WUS2A was previously delineated under the I-95 ETL Section 100 project as one of two streams named GPJR-WUS2; its name was changed to disambiguate the two streams.

#### **GPJR-WUS2B**

GPJR-WUS2B is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream originates from BRBR-WET1 and flows north into GPJR-WUS2A, a tributary to the Gunpowder River, a TNW. Bank slopes are 2:1 and range between 12 and 18 inches in height; at the time of delineation, no flow was observed within the channel. The substrate consists of cobble, gravel, and sand. GPJR-WUS2B was previously delineated under the I-95 ETL Section 100 project as one of two streams named GPJR-WUS2; its name was changed to disambiguate the two streams.

#### **GPJR-WUS1**

GPJR-WUS1 is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream is a continuation of GPJR-WUS2A, eventually flowing into a cross culvert under I-95 and becoming perennial GPJR-WUS1, a tributary to the Gunpowder River, a TNW. Bank slopes are 2:1 and range between 2 and 4 feet in height; at the time of delineation, no flow was observed within the channel. The substrate consists of cobble, gravel, sand, and silt. GPJR-WUS1 was previously delineated under the I-95 ETL Section 100 project.

#### **GPJR-WUS3**

GPJR-WUS3 is an intermittent stream located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream is a continuation of GPJR-WUS10B and flows southwest into BRBR-WET1. Bank slopes are vertical and range between 10 and 18 inches in height; at the



time of delineation there was no flow observed within the channel. The substrate consists of cobble, gravel, sand, and silt. GPJR-WUS3 was previously delineated under the I-95 ETL Section 100 project.

#### **GPJR-WUS10B**

GPJR-WUS10B is an intermittent stream located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream originates outside of the Study Area from a stormwater outfall and flows west into GPJR-WUS3, a tributary to the Gunpowder River, a TNW. Bank slopes are vertical and 4 inches in height; at the time of delineation, no flow was observed within the channel. The substrate consists of gravel and sand. GPJR-WUS10B was previously delineated under the I-95 ETL Section 100 project.

#### **GPJR-WUS1A**

GPJR-WUS1A is an intermittent, concrete-lined channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). The stream flows into GPJR-WUS1, a tributary to the Gunpowder River, a TNW. At the time of delineation, no flow was observed within the channel. GPJR-WUS1A was previously delineated as part of GPJR-WUS1 under the I-95 ETL Section 100 project.

#### **GPJR-WUS1B**

GPJR-WUS1B is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). Prior to recent construction, the stream originated from GPJR-WET1; however, GPJR-WET1 no longer exists, and GPJR-WUS1B is now fed only by a stormwater outfall. The stream flows north into GPJR-WUS1A, a tributary to the Gunpowder River, a TNW. Bank slopes are 2:1 and range between 1 and 2 feet in height; at the time of delineation there was no flow observed within the channel. The substrate consists of cobble, gravel, sand, and silt. GPJR-WUS1B was delineated in the original Section 100 delineation as part of GPJR-WUS1. GPJR-WUS1B has been partially impacted by construction activities.

#### **WUS O**

WUS O is an intermittent channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Map 5**). Prior to recent construction, the stream originated from WET J; however, WET J no longer exists, and WUS O is now fed only by upland runoff. It flows west into WUS P, a tributary to the Gunpowder River, a TNW. Bank slopes vary between vertical and 2:1 with banks 6 inches in height; at the time of delineation, no flow was observed within the channel. The substrate consists of gravel and sand. WUS O has been partially impacted by construction activities.

#### **WUS P**

WUS P is an ephemeral channel located on the northbound side of I-95, north of East Joppa Road (**Appendix B, Maps 5-6**). The stream is a concrete swale that flows to the southwest into



GPJR-WUS1A, a tributary to the Gunpowder River, a TNW. WUS P transitions to an intermittent channel approximately 60 feet prior to its confluence with GPJR-WUS1A, below its confluence with WUS O. Bank slopes are 2:1 and 2 feet in height; at the time of delineation there was no flow observed within the channel. The substrate is concrete. WUS P was delineated in 2017 and has since been partially impacted by construction activities.

#### 3.4.3 SOUTHBOUND WETLAND DESCRIPTIONS

#### WMHG-WET10

WMHG-WET10 is a PEM wetland located on the southbound side of I-95, south of Cowenton Avenue (**Appendix B, Map 1**). The wetland is approximately 13,352 square feet (0.307 acres) in size and continues outside of the Study Area. The wetland directly abuts WMHG-WUS9 (Honeygo Run). Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included common reed (*Phragmites australis*, FACW). The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. WMHG-WET10 was delineated within the previously delineated boundary of WMHG-WET4 under the I-95 ETL Section 100 project; however, its boundary appears to have changed due to subsequent widening of I-95.

#### **BRBR-WET5-PFO**

BRBR-WET5-PFO is a PFO wetland located along the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The wetland is approximately 56,961 square feet (1.308 acres) in size. The wetland originates outside of the Study Area and drains to BRBR-WUS11 and BRBR-WUS13A. Primary hydrologic indicators included the presence of water-stained leaves and oxidized rhizospheres on living roots. Dominant species included red maple, pin oak (*Quercus palustris*, FACW), spice bush, southern arrowwood, bladder sedge (*Carex intumescens*, FACW), soft rush, Japanese stiltgrass, poison ivy, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is shown on NWI GIS mapping. BRBR-WET5 was delineated within the previously delineated boundaries of BRBR-WET9 and BRBR-WET5 under the I-95 ETL Section 100 project.

#### **BRBR-WET5-PEM**

BRBR-WET5-PEM is a PEM wetland located along the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The wetland is approximately 6,604 square feet (0.152 acres) in size and drains to BRBR-WUS11. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included bladder sedge, soft rush, Japanese stiltgrass, poison ivy, and seedbox (*Ludwigia alternifolia*, OBL). The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is shown on NWI GIS mapping. BRBR-WET5 was delineated within the previously delineated boundaries of BRBR-WET9 and BRBR-WET5 under the I-95 ETL Section 100 project.



#### **BRBR-WET6**

BRBR-WET6 is a PEM wetland located on the southbound side of I-95, south of East Joppa Road (**Appendix B, Map 2**). The wetland is approximately 2,553 square feet (0.058 acres) in size. The wetland originates at the outfall of a recently constructed stormwater management facility. BRBR-WET6 drains to BRBR-WUS13A. Primary hydrologic indicators included the presence of saturation and oxidized rhizospheres on living roots. Dominant species included broadleaf cattail (*Typha latifolia*, OBL), poison ivy, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. BRBR-WET6 was previously delineated under the I-95 ETL Section 100 project.

#### BRBR-WET98-PFO

BRBR-WET98-PFO is a PFO wetland located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 3**). The wetland is approximately 20,533 square feet (0.432 acres) in size. The wetland originates outside of the Study Area and drains to BRBR-WUS9. Primary hydrologic indicators included the presence of water-stained leaves and oxidized rhizospheres on living roots. Dominant species included red maple, pin oak, black gum, spice bush, southern arrowwood, Japanese stiltgrass, soft rush, bladder sedge, poison ivy, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

#### **BRBR-WET98-PEM**

BRBR-WET98-PEM is a PEM wetland located along the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 3**). The wetland is approximately 4,069 square feet (0.131 acres) in size. PEM datapoint was taken because of mosaic areas of PEM that exist within the larger PFO wetland. This area consists mostly of a constructed ditch that provides a hydrologic connection between the two areas classified as palustrine forested. The ditch was constructed to help convey surface flow downslope to BRBR-WUS9. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included jewel weed, broadleaf cattail, and sensitive fern (*Onoclea sensibilis*, FACW). The soils in the sample plot are hydric, meeting the Redox Dark Surface Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

#### **BRBR-WET99**

BRBR-WET99 is a narrow PEM wetland swale located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 4**). The wetland is approximately 611 square feet (0.014 acres) in size. The wetland drains to BRBR-WUS9. The relatively small area does not show signs of channelization, which would be characteristic of a watercourse. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included bladder sedge. The soils in the sample plot are hydric, meeting the Depleted Matrix soil indicator. This wetland feature is not shown on NWI or DNR GIS mapping.



#### **GPJR-WET4**

GPJR-WET4 is a PFO wetland located along the southbound side of I-95, north of East Joppa Road (Appendix B, Maps 4-5). The wetland is approximately 49,009 square feet (1.125 acres) in size. The wetland originates outside of the Study Area in some places and drains to GPJR-WUS4. A large stormwater facility located upslope from the wetland limits may be contributing to the wetland hydrology. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included red maple, pin oak, highbush blueberry, southern arrowwood, spicebush, Japanese honeysuckle, and poison ivy. The soils in the sample plot are hydric, meeting the Redox Dark Surface Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping. GPJR-WET4 is located in close proximity to the previously delineated GPJR-WET4 under the I-95 ETL Section 100 project that was subsequently deemed non-jurisdictional during the Jurisdictional Determination review in 2004 presumably because it was mowed and managed as part of a roadway ditch (MDTA, 2003).

#### WET95A

WET95A is a PFO wetland located along the southbound side of I-95, north of East Joppa Road (**Appendix B, Maps 5-6**). The wetland is approximately 13,724 square feet (0.315 acres) in size and continues outside of the Study Area. The wetland directly abuts a perennial stream channel located outside of the Study Area. A large stormwater facility located upslope from the wetland limits may be contributing to the hydrology. Primary hydrologic indicators included the presence of a high water table, saturation, and oxidized rhizospheres on living roots. Dominant species included red maple, black gum, Japanese stiltgrass, Japanese honeysuckle, and poison ivy. The soils in the sample plot are hydric, meeting the Loamy Gleyed Matrix Soil Indicator. This wetland feature is not shown on NWI or DNR GIS mapping.

#### WET96A

WET96A is a PFO wetland located on the southbound side of I-95, north of East Joppa Road (**Appendix B, Map 6**). The wetland is approximately 3,815 square feet (0.087 acres) in size and continues outside of the Study Area; it appears to be an isolated feature. Primary hydrologic indicators included the presence of oxidized rhizospheres on living roots. Dominant species included red maple, southern arrowwood, spice bush, soft rush, multiflora rose, and roundleaf greenbriar. The soils in the sample plot are hydric, meeting the Depleted Matrix Soil Indicator; however, the area appears to be reverting to upland. This wetland feature is not shown on NWI or DNR GIS mapping.

#### 3.4.4 SOUTHBOUND WATERWAY DESCRIPTIONS

#### WMHG-WUS9

WMHG-WUS9 (Honeygo Run) is a perennial stream located on the southbound side of I-95, south of Cowenton Road (**Appendix B, Map 1**). The channel originates from the west and flows east through the Study Area before crossing below I-95. The stream is approximately 12 feet wide and



flows 3 inches deep were observed within the Study Area. Bank slopes range from 3:1 to 4:1 and are fully vegetated. The substrate consists of mostly sand with few cobbles and gravel. WMHG-WUS9 was previously delineated under the I-95 ETL Section 100 project.

#### **BRBR-WUS11**

BRBR-WUS11 is a perennial stream located on the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The stream originates from the west, outside of the Study Area and flows southeast into a cross culvert under I-95, becoming BRBR-WUS8, a tributary to the Bird River, a TNW. The substrate consists of mostly sand with cobble and gravel. The channel averages 5 feet wide with vertical banks, and a water depth of 2 to 9 inches. The channel is heavily incised with vertical banks. BRBR-WUS11 was previously delineated under the I-95 ETL Section 100 project.

#### **BRBR-WUS13A**

BRBR-WUS13A is a perennial stream located on the southbound side of I-95, north of Cowenton Avenue (**Appendix B, Map 2**). The stream is a channelized ditch paralleling the road bank which also receives hydrology from BRBR-WET5, BRBR-WET6, and a stormwater management facility. The stream flows southwest into BRBR-WUS11. The stream has vertical, undercut banks with very little vegetation. The substrate consists of mostly sand with some cobble and gravel. The channel averages 2 feet wide, with a water depth of 1 to 4 inches. BRBR-WUS13A was previously delineated under the I-95 ETL Section 100 project.

#### **BRBR-WUS9**

BRBR-WUS9 is a perennial stream located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Maps 3-4**). The stream enters the Study Area from the north and flows south into a cross culvert under I-95, becoming BRBR-WUS1, a tributary to the Bird River, a TNW. BRBR-WUS9 is hydrologically connected to BRBR-WET99, BRBR-WUS99, and BRBR-WUS98. Bank slopes range from 2:1 to 3:1, with some unvegetated areas present. The substrate consists of mostly sand with some cobble and gravel. The channel averages 3 feet wide, with a water depth of 3 to 8 inches. BRBR-WUS9 was previously delineated under the I-95 ETL Section 100 project.

#### **BRBR-WUS98**

BRBR-WUS98 is a perennial stream located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Map 4**). The stream enters the Study Area from the north and flows south into BRBR-WUS99, a tributary to the Bird River, a TNW. The channel looks to have recently developed due to increased surface runoff from the surrounding area. The stream has vertical banks with very little vegetation for stabilization. The substrate consists of mostly sand and silt. The channel averages 1.5 feet wide, with a water depth of 0 to 1 inch.



#### **BRBR-WUS99**

BRBR-WUS99 is an intermittent and perennial stream located on the southbound side of I-95, immediately north of East Joppa Road (**Appendix B, Maps 3-4**). The channel consists of a concrete flume that flows southwest and parallels I-95 before reaching a confluence with BRBR-WUS9, where the stream becomes perennial, a tributary to the Bird River, a TNW. BRBR-WUS99 begins to capture groundwater approximately 250 feet upstream from its confluence with BRBR-WUS9. A coating of brown and green algae was observed, beginning at the upstream end of the channel. The concrete flume has numerous areas of damaged concrete for groundwater to infiltrate. The channel averages 9 feet wide, with an average water depth below 1 inch.

#### **GPJR-WUS4**

GPJR-WUS4 is a perennial stream located on the southbound side of I-95, north of the East Joppa Road overpass (**Appendix B, Map 5**). The channel originates from GPJR-WET4 and conveys surface water northeast until reaching the confluence with GPJR-WUS1, a tributary to the Gunpowder River, a TNW. Bank slopes range from 2:1 to 3:1 and are fully vegetated. The substrate consists of mostly sand and silt. The channel averages 1.5 feet wide, with a water depth of 0 to 1 inch. GPJR-WUS4 was previously delineated under the I-95 ETL Section 100 project.

#### **GPJR-WUS1**

GPJR-WUS1 is a perennial stream located on the southbound side of I-95, north of the East Joppa Road overpass (**Appendix B, Map 5**). The stream is a continuation of its intermittent portion that is conveyed from the northbound side of I-95 to the southbound side via a pipe culvert, daylighting as a perennial stream. The stream continues north outside of the Study Area and flows into a tributary to the Gunpowder River, a TNW. Bank slopes range from 2:1 to 3:1, with stable banks. The substrate consists of cobbles, sands, and gravel. The channel averages 5 feet wide, with a water depth from 2 to 6 inches. GPJR-WUS1 was previously delineated under the I-95 ETL Section 100 project.

#### 3.4.5 NON-JURISDICTIONAL RESOURCE DESCRIPTIONS

#### **WUSI**

On May 29, 2020, USACE determined that this resource is a non-jurisdictional roadside ditch. WUS I was previously delineated as an ephemeral channel located on the northbound side of I-95, south of East Joppa Road (**Appendix B, Map 3**). The ditch originates to the southwest of WET F and flows into BRIS-WET3. Bank slopes are 2:1 and range between 12 and 18 inches in height; at the time of delineation there was no flow observed within the channel. The substrate consists of gravel, sand, silt, muck, and vegetation.

#### **BRIS-WET3**

On May 29, 2020, MDE and USACE determined that this resource is not jurisdictional because per MDTA, 2003 it was constructed as a stormwater management structure to treat I-95 runoff.



BRIS-WET3 was previously delineated as a PEM wetland located northeast of BRBR-WET22-PSS on the northbound side of I-95 (**Appendix B, Map 3**). The resource is approximately 639 square feet (0.014 acres) in size and was originally delineated under the I-95 ETL Section 100 project. JMT confirmed the accuracy of the previously delineated boundary; therefore, a new data form was not completed and the data form from the 2003 delineation is included in **Appendix C**. Primary hydrologic indicators included inundation. The vegetation within the resource is hydrophytic. The dominant vegetation included narrow leaf cattail (*Typha angustifolia*, OBL) and black willow (*Salix nigra*, FACW). Soils in the sample plot are hydric. This resource is not shown on NWI or DNR GIS mapping.

## 4.0 CONCLUSION

During the wetland and waterways delineation, JMT delineated 11 wetlands and 21 waterways on the northbound side of I-95. Wallace Montgomery delineated eight wetlands and eight waterways on the southbound side of I-95. Following the 2020 preliminary Jurisdictional Determination, one waterway and one wetland were reclassified as non-jurisdictional. The remaining environmental features may be subject to regulation by the USACE and MDE. Impacts to these areas may require modifications to the existing I-95 ETL Section 100 permits, and mitigation for potential impacts may be required.



## 5.0 REFERENCES

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# APPENDIX A AGENCY CORRESPONDENCE





## United States Department of the Interior

#### FISH AND WILDLIFE SERVICE

Chesapeake Bay Ecological Services Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401-7307 Phone: (410) 573-4599 Fax: (410) 266-9127

http://www.fws.gov/chesapeakebay/

http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html



In Reply Refer To: October 03, 2019

Consultation Code: 05E2CB00-2020-SLI-0012

Event Code: 05E2CB00-2020-E-00033

Project Name: I-95 ETL Northbound Extension Cowenton Avenue to New Forge Road

Subject: List of threatened and endangered species that may occur in your proposed project

location, and/or may be affected by your proposed project

#### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle\_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

#### Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

## **Official Species List**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

## **Project Summary**

Consultation Code: 05E2CB00-2020-SLI-0012

Event Code: 05E2CB00-2020-E-00033

Project Name: I-95 ETL Northbound Extension Cowenton Avenue to New Forge Road

Project Type: TRANSPORTATION

Project Description: The purpose of the proposed improvements is to address capacity and

safety needs within the project limits and thereby improve access,

mobility and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles. The project includes a northbound single lane ETL extension from MD 43 to south of MD 152, a northbound auxiliary lane from MD 152 to MD 24/MD 924, overpass reconstruction, and two noise walls along northbound I-95. The proposed improvements will be constructed in multiple phases while safely maintaining traffic. Minor impacts to environmental resources are anticipated and will be

mitigated in coordination with federal/state regulations.

#### **Project Location:**

Approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/place/39.39700503726443N76.4310274054557W">https://www.google.com/maps/place/39.39700503726443N76.4310274054557W</a>



Counties: Baltimore, MD

Threatened

## **Endangered Species Act Species**

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### **Mammals**

NAME STATUS

#### Northern Long-eared Bat Myotis septentrionalis

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

 Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key

Species profile: https://ecos.fws.gov/ecp/species/9045

#### Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

# **USFWS National Wildlife Refuge Lands And Fish Hatcheries**

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

1

### Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

Event Code: 05E2CB00-2020-E-00033

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

PEM1Ex

FRESHWATER FORESTED/SHRUB WETLAND

PFO1A

#### **RIVERINE**

- R4SBC
- R3UBH



Larry Hogan, Governor Boyd Rutherford, Lt. Governor Mark Belton, Secretary Joanne Throwe, Deputy Secretary

18-MIS-020

September 13<sup>th</sup>, 2017

William Pines Maryland Transportation Authority 300 Authority Dr. Baltimore, MD 21222

Subject: Fisheries Information for the MDTA I-95 Express Toll Lanes Northern Transition from MD43 to MD 152, MDTA Tracking# KH-3009, Baltimore and Harford Counties

Dear Mr. Pines:

The above referenced project has been reviewed to determine fisheries species near the proposed project. The proposed activities include adding a single express toll lane on northbound I-95 from MD 43 to MD 152, a slip ramp north of MD 43 to allow ETL users to merge into general purpose lanes, replace the Bradshaw Overpass, replace the Old Joppa Road Overpass, and reconstruct the parapets on the Big Gunpowder and Little Gunpowder bridges and construct two noise walls.

The project will impact Gunpowder falls which is classified as a Use IV (supports adult trout) stream. Anadromous fish are present in Gunpowder Falls. Generally no instream work is allowed in Use IV streams with anadromous fish between February 15<sup>th</sup> and June 15<sup>th</sup> of any given year to protect spawning fish. In addition the project site is within a Sensitive Species Project Review Area. The MDDNR Wildlife Heritage Service should be contacted to see if they have any additional Rare, Threatened or Endangered species concerns or comments. In addition the project will impact Little Gunpowder Falls which is classified as a Use III stream. Anadromous fish are also present in Gunpowder Falls. Generally no instream work is allowed in Use III stream containing anadromous fish from October 1<sup>st</sup> through June 15<sup>th</sup> of any given year to protect spawning fish. If adequate sediment and erosion controls can be implemented during construction which will prevent sediment laden runoff from reaching these streams, and no instream work is required, than a Time of Year restriction period would not need to be implemented. The applicant is encouraged to strictly adhere to the approved sediment and erosion control plan to prevent further sedimentation downstream during construction.

DNR has documented many resident fish species from Gunpowder Falls and Little Gunpowder Falls and their tributaries by our Maryland Biological Stream Survey. MBSS data can be accessed via the MDDNR web page at <a href="http://streamhealth.maryland.gov">http://streamhealth.maryland.gov</a>, allowing access to resource surveys in neighboring tributaries.

If you have any further questions, please feel free to contact me at 410 260-8736.

Sincerely;

Christopher Aadland

Environmental Review Program

mittocher addland



Larry Hogan, Governor Boyd Rutherford, Lt. Governor Mark Belton, Secretary Joanne Throwe, Deputy Secretary

August 22, 2017

Mr. William N. Pines Maryland Transportation Authority 300 Authority Drive Baltimore, MD 21222-2200

RE: Environmental Review for MDTA I-95 Express Toll Lanes Northern Transition, from MD 43 to MD 152, MDTA Tracking #KH-3009, Harford and Baltimore Counties, Maryland.

Dear Mr. Pines:

The Wildlife and Heritage Service has determined that there are no official State or Federal records for listed plant or animal species within the delineated area shown on the map provided. As a result, we have no specific concerns regarding potential impacts or recommendations for protection measures at this time. Please let us know however if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,

Environmental Review Coordinator Wildlife and Heritage Service MD Dept. of Natural Resources

ER# 2017.1226.ha/ba

201704621

Red 8/7/17 FHWA



#### Maryland Transportation Authority

Larry Hogan Governor

Boyd K. Rutherford Lt. Governor

> Pete K. Rahn Chairman

Katherine Bays Armstrong
Peter J. Basso
Dontae Carroll
William H. Cox, Jr.
William C. Ensor, III
W. Lee Gaines, Jr.
John Von Paris

Kevin C. Reigrut Executive Director

300 Authority Drive Baltimore MD 21222-2200 410-537-7500 410-537-7803 (fax) 711 (MD Relay) 1-888-754-0098

> e-mail: mdta@ mdta.maryland.gov

www.mdta.maryland.gov

July 25, 2017

Ms. Elizabeth Hughes State Historic Preservation Officer Maryland Historic Trust 100 Community Place, 3<sup>rd</sup> floor Crownsville, MD 21032-2023

Attention: Ms. Beth Cole

RE: Maryland Transportation Authority (MDTA)

I-95 Express Toll Lanes Northern Transition

From MD 43 to MD 152 MDTA Tracking # KH-3009

Baltimore and Harford Counties, MD Request for Project Review and Comment

Dear Ms. Hughes:

The Maryland Transportation Authority (MDTA) is proposing to begin staged implementation of the I-95 Section 200 approved NEPA FONSI improvements. The first stage of implementation will include adding a single express toll lane (ETL) on northbound I-95 from MD 43 to MD 152, a slip ramp north of MD 43 to allow ETL users to merge into the general purpose lanes (GPLs), replacement of the Bradshaw Overpass, replacement of the Old Joppa Road Overpass, reconstructing the parapets on the Big Gunpowder and Little Gunpowder bridges, and two noise walls.

The proposed improvements will address capacity, operational, and safety concerns that exist along northbound I-95. The proposed improvements will be constructed within different contracts to address constructability, maintenance of traffic, and yearly funding availability. This is a state project with state funding and permit authorizations that will follow the Maryland Historical Trust Act §§ 5A-325 and 5A-326 of the State Finance and Procurement Article for state level compliance. The project will also require a joint permit from the Maryland Department of the Environment (MDE) and the U.S. Army Corps of Engineers (USACE).

We request your project review and comment. Please include the MDTA tracking number listed in the subject line above in all future correspondence. If you have questions on the proposed project or require additional information to complete your review, please contact me at wpines@mdta.state.md.us or (410) 931-0808.

Sincerely,

William N. Pines, P.E.

Director of Project Development

Enclosure: Location Map

The Maryland Historical Trust has determined that there are no historic properties affected by this undertaking.

In Valenno Date 8/22/17

cc:

MDTA: James Harkness, Serena Liu, Peter Mattejat, Pam McNicholas, Ning Zhou

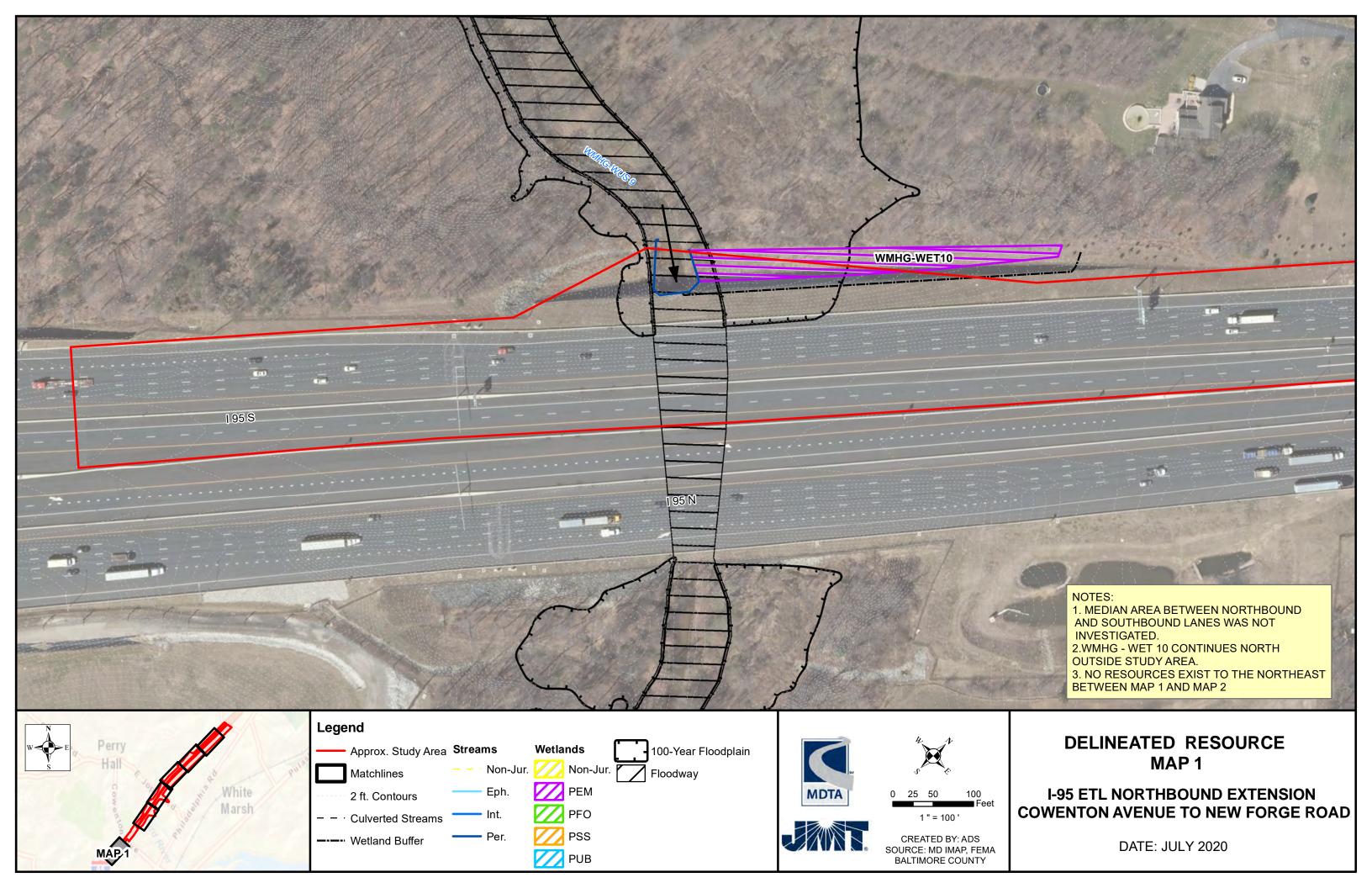
JMT: Stacey Gill, Leyla Lange, Michael Rothenheber

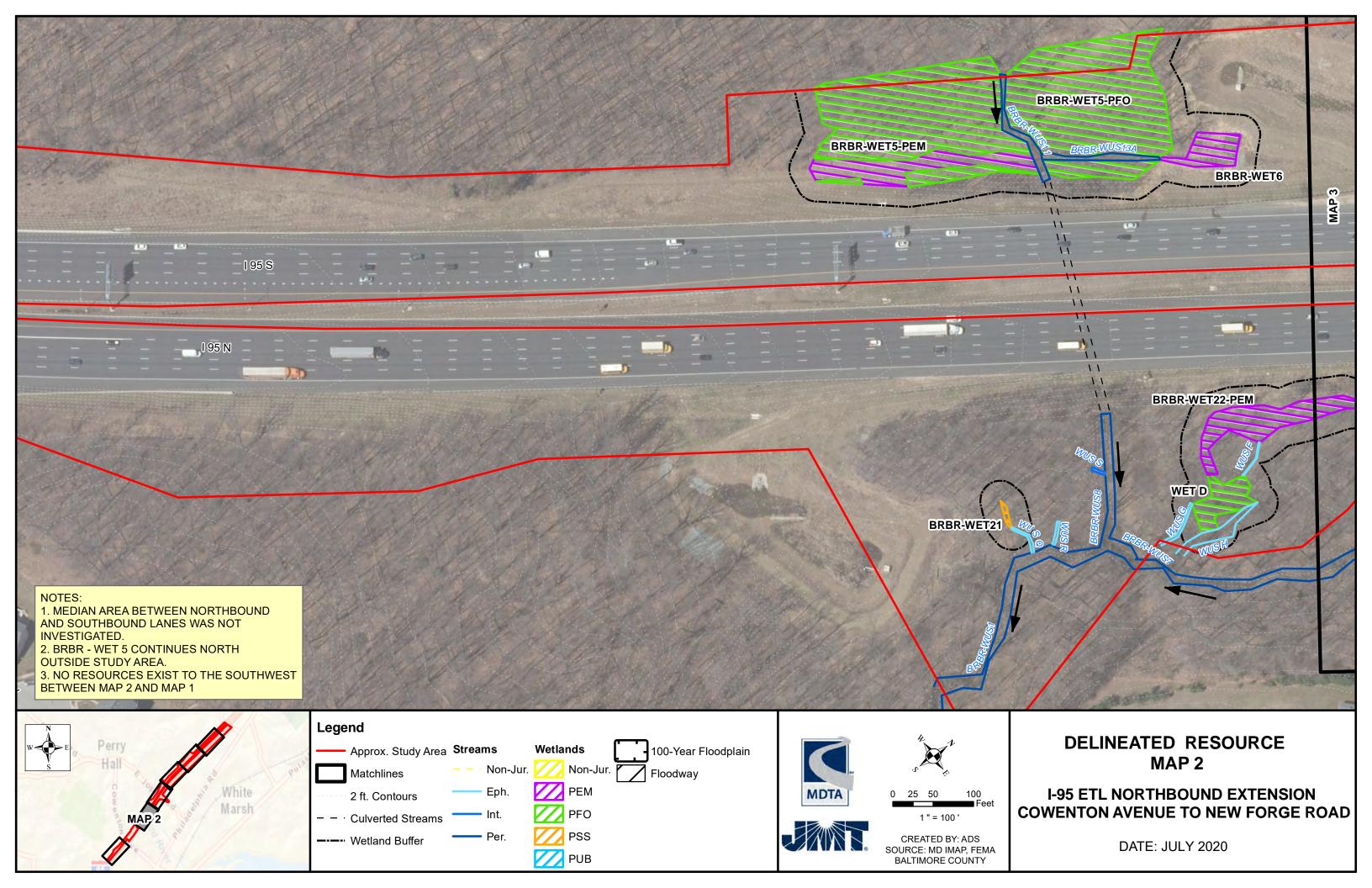
RKK: Sally Kishter, Greg O'Hare, Mitchell Scott, Ed Tinney

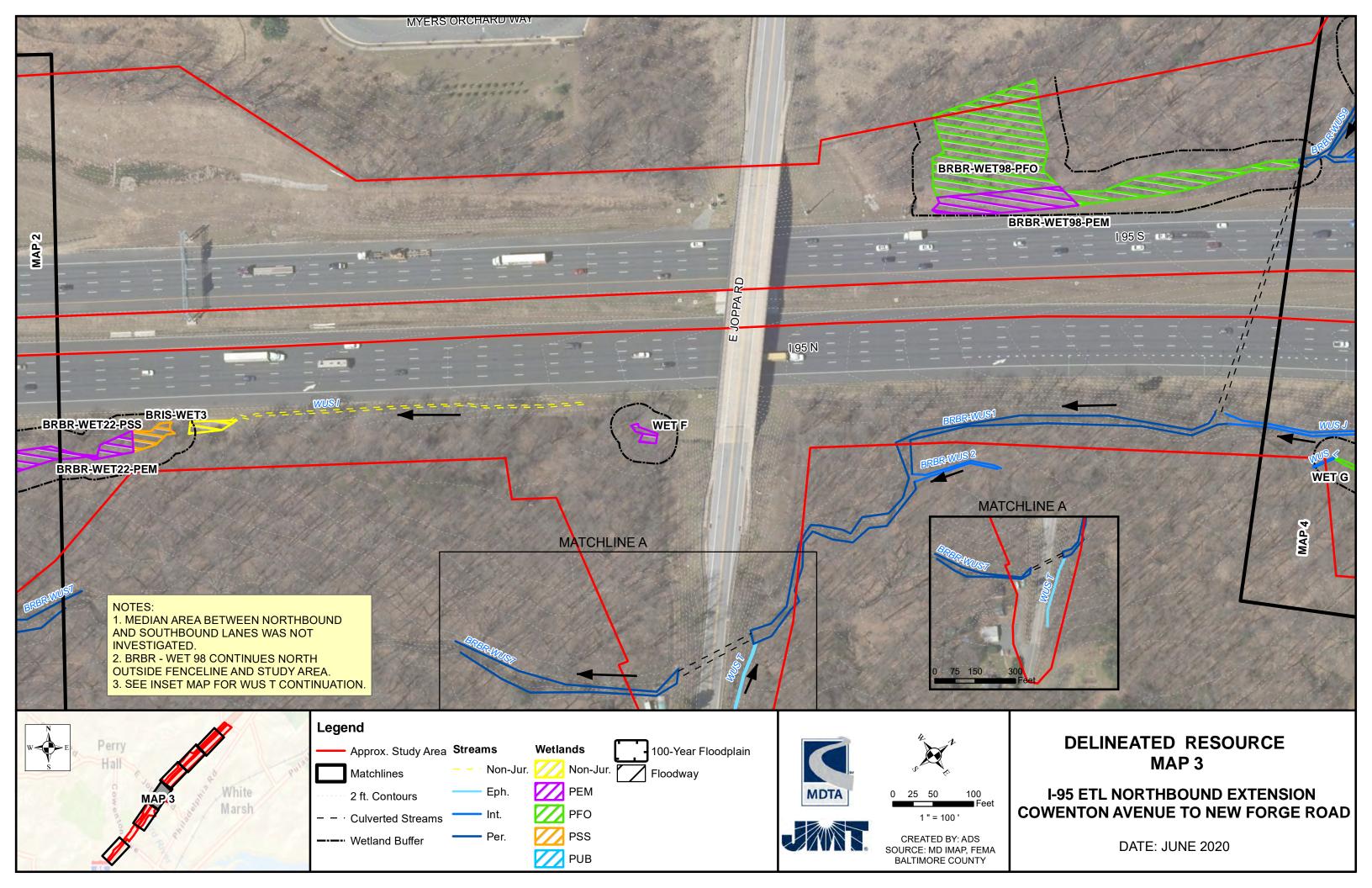
CDM Smith: David Greenwood

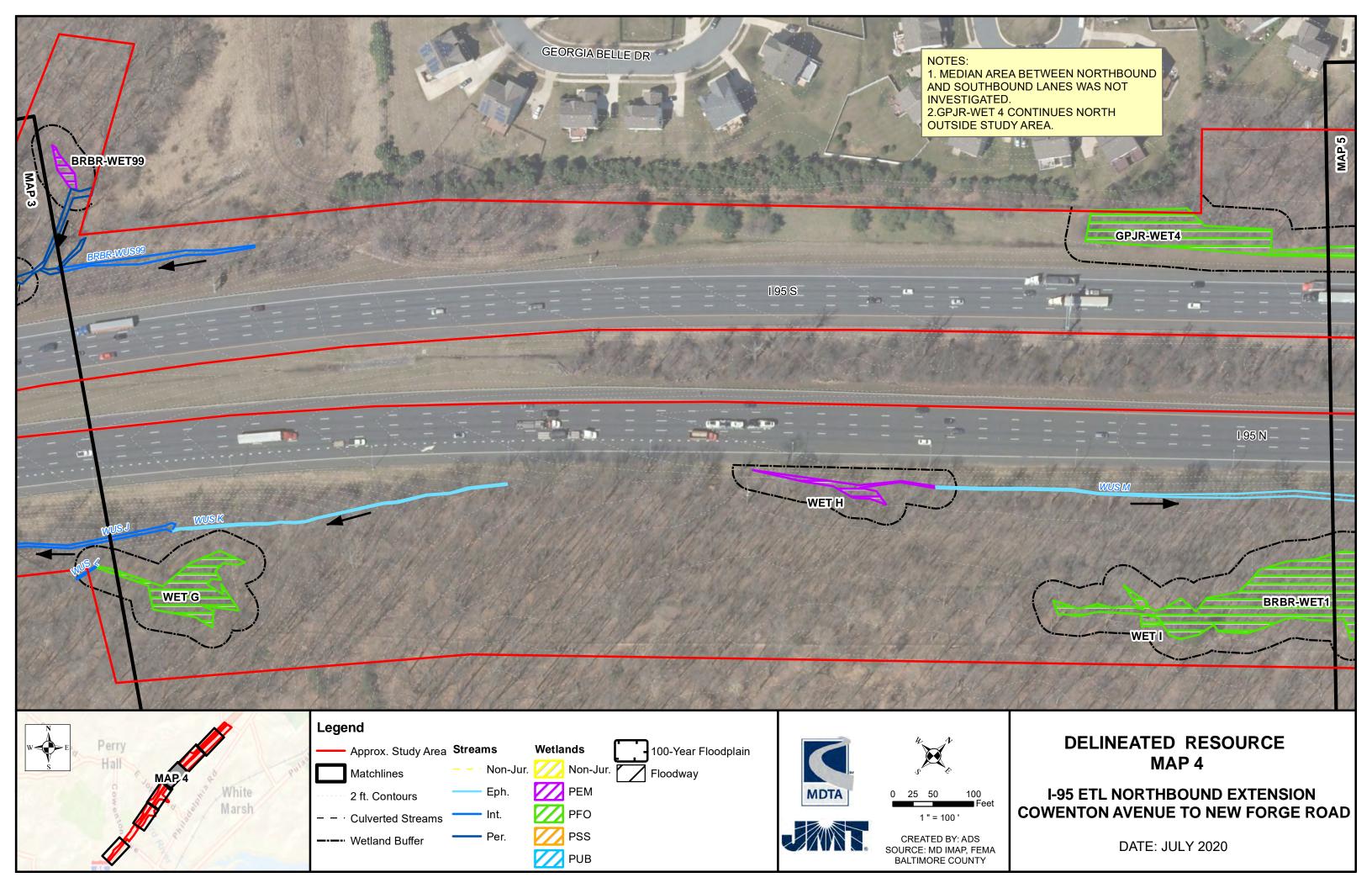
# APPENDIX B DELINEATED RESOURCE MAPS

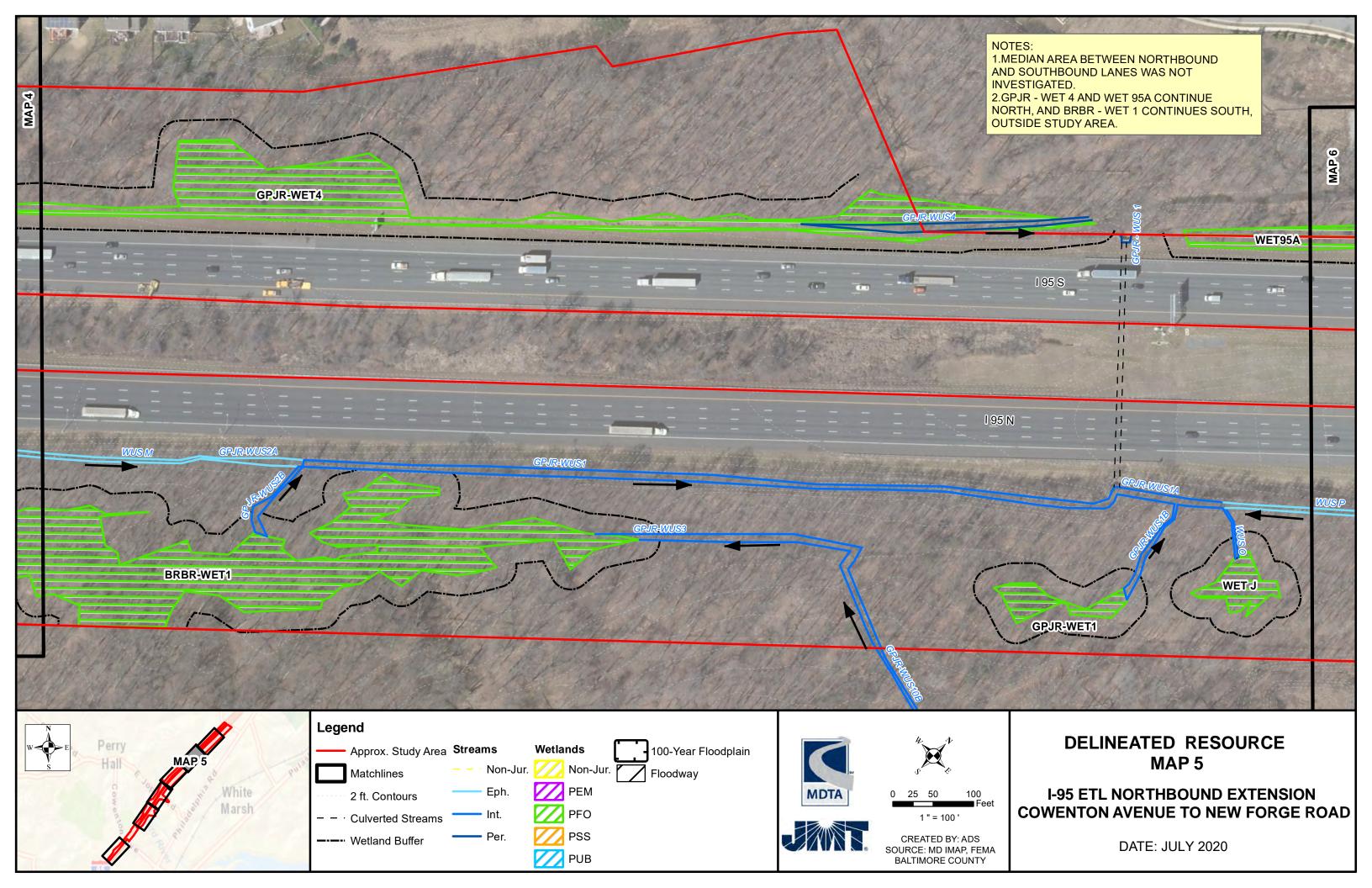


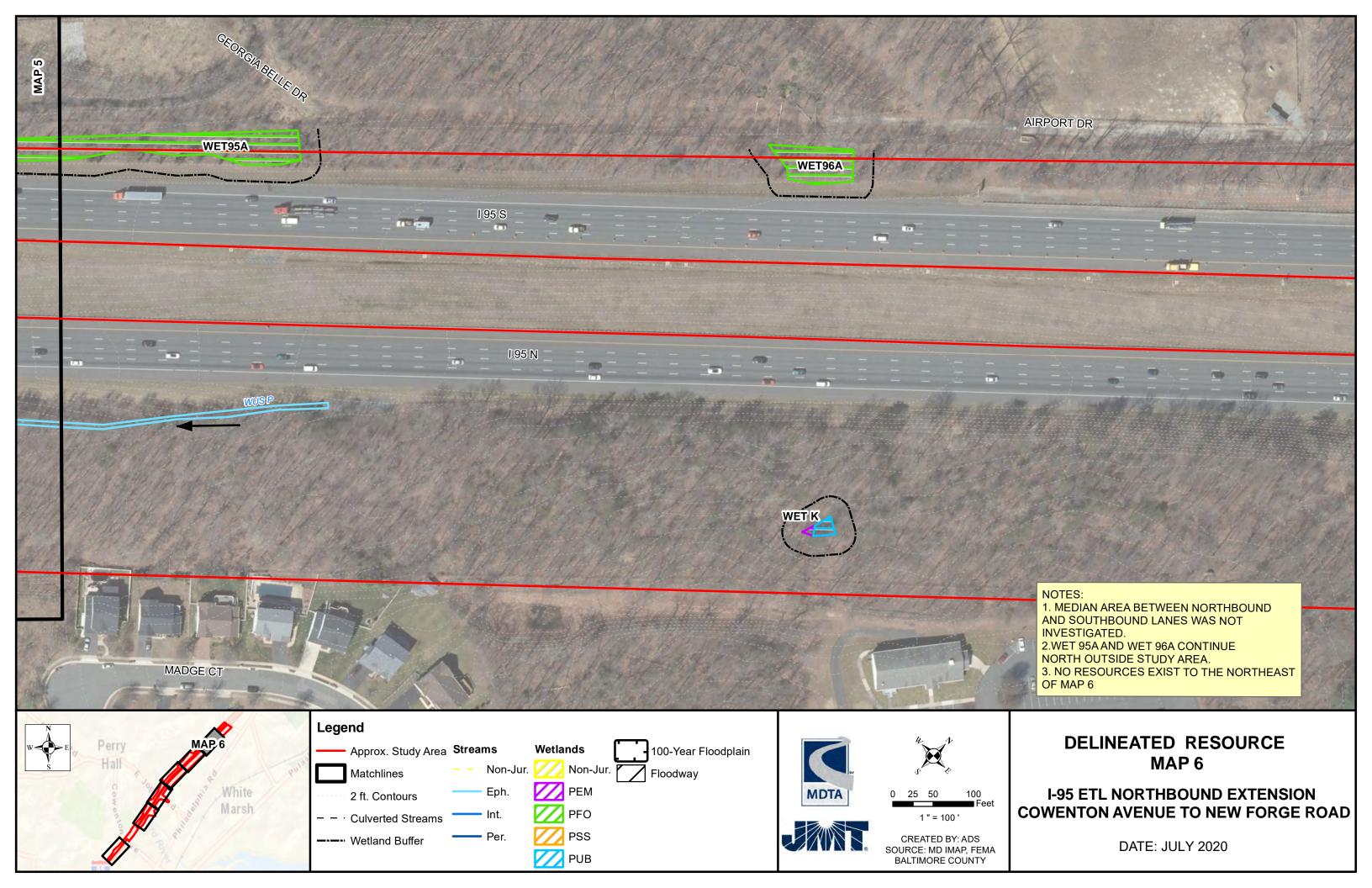












## APPENDIX C WETLAND, UPLAND, AND STREAM DATASHEETS



Project/Site: I-95 ETL Northbou	nd Extension		City/County:	Baltimore	Sampling Date: 8/21/17			
Applicant/Owner: Maryland Tra	nsportation Auth	nority		State:	MD Sampling Point: BRBR-WET21-SP			
Investigator(s): E. Markel, S. Kr	ight		Section, Tow	rnship, Range: Jopp	pa			
Landform (hillslope, terrace, etc.):		Hillslope		concave, convex, none):				
Subregion (LRR or MLRA): ML		•		93252 Long:				
Soil Map Unit Name: MpB - Mo		am 3 to 8	_	9	NWI classification: PSS			
Are climatic/hydrologic conditions				Yes 🔽 No	(If no, explain in Remarks.)			
Are Vegetation Soil	=1		significantly dist		rcumstances" present? Yes V No			
Are Vegetation Soil	or Hydrolog		naturally proble		ain any answers in Remarks.)			
ů <u> </u>					, transects, important features, etc.			
Hydrophytic Vegetation Present?	Yes	~	No 🔲					
Hydric Soil Present?	Yes	₹	No 🔲	Is the Sampled Area	Yes 🔽 No 🔲			
Wetland Hydrology Present?	Yes	<b>V</b>	No 🔲	Within a Wetland?	, , , , , , , , , , , , , , , , , , , ,			
welland rightlology Fresent!			NO JEJ					
Remarks: Fed by unmanaged roadside runo 100 permit.	ff uphill drainage	e patterns	not defined enou	igh to be streams. Within a	area previously delineated under I-95 ETL Section			
HYDROLOGY								
Wetland Hydrology Indicators:					Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of or	e is required; ch		,		Surface Soil Cracks (B6)			
Surface Water (A1)			uatic Fauna (B13)		Sparsely Vegetated Concave Surface (B8)			
☐ High Water Table (A2) ☐ Saturation (A3)			ri Deposits (B15) drogen Sulfide Od		<ul><li>✓ Drainage Patterns (B10)</li><li>✓ Moss Trim Lines (B16)</li></ul>			
Saturation (A3)  Water Marks (B1)			· ·	res on Living Roots (C3)	<ul><li>  Moss Trim Lines (B16)</li><li>  Dry-Season Water Table (C2)</li></ul>			
Sediment Deposits (B2)			sence of Reduce		Crayfish Burrows (C8)			
Drift Deposits (B3)				on in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4)			n Muck Surface (	C7)	Geomorphic Position (D2)			
Iron Deposits (B5)			ner (Explain in Re	·	Shallow Aquitard (D3)			
Inundation Visible on Aerial	Imagery (B7)				FAC-Neutral Test (D5)			
Water-Stained Leaves (B9)					Sphagnum moss (D8)(LRR T, U)			
Field Observations:								
Surface Water Present? Yes	<b>▼</b> No	<b>□</b>   De	epth (inches):	2"				
Water Table Present? Yes	□ No	<b>▼</b> De	epth (inches):					
Saturation Present? Yes (includes capillary fringe)	□ No		epth (inches): _		Irology Present? Yes 🔽 No 🗀			
Describe Recorded Data (stream	gauge, monitorii	ng well, ae	erial photos, previ	ous inspections), if availab	ole:			
D								
Remarks:								

EGETATION (Four Strata) – Use scientific names of plants.	Sampling Point:	BRBR-WET21-SP
EGETATION (Four Guala) - OSE SCIENTIFIC HAITIES OF PIANTS.		

Tree Stratum ( Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1				Number of Dominant Species
2.				That Are OBL, FACW, or FAC:  (A)
3				Total Number of Dominant Species Across All Strata:  (B)
4.				Percent of Dominant Species
6				That Are OBL, FACW, or FAC:
7.				
8.				Prevalence Index Worksheet:
	=	Total Cover		Total % Cover of: Multiply by:
50% of total cover:	20%	of total cover:		OBL species x1=
Sapling/Shrub Stratum (Plot size: 30'				FACW species x2=
1. Lindera benzoin	00	Yes	FACW	FAC species x3=
Fraxinus pennsylvanica	5	Yes	FACW	FACU species x4=
3				UPL species x5=
				Column Totals: (A) (B)
4.         5.				
•				Prevalence Index = B/A =
6 7				Hydrophytic Vegetation Indicators:
8.				1 - Rapid Test for Hydrophytic Vegetation
·		Total Cover		X 2 - Dominance Test is > 50%
50% of total cover:		of total cover:	5	3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
Herb Stratum (Plot size: 30'		or total cover.		Problematic Hydrophytic Vegetation <sup>1</sup>
1 Lagrain virginian	20	Yes	FACW	(Explain)
Leersia virginica     Fraxinus pennsylvanica	10	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology
3. Celastrus orbiculatus	5	No	FACU	must be present, unless disturbed or problematic.
Unicus effusus  4. Juncus effusus	<u>5</u>	No No	OBL	Definitions of Four Vegetation Strata:
Junicus eriusus     Viburnum dentatum	<u>5</u>	No No	FAC	
6. Onoclea sensibilis			FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
		No		regardless of height.
7 8.				
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m)
				tall.
·				
11 12.				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than
12.	50 =	Total Cover		3.28 ft tall.
50% of total cover:		of total cover:	10	Woody vine – All woody vines greater than 3.28 ft
Woody Vine Stratum (Plot size: 30'	2070	or total cover.		in height.
\	/			
1				
2				
3				
4				
5		Total Cover		Hydrophytic
50% of total cover:	-	of total cover:		Vegetation   Present? Yes   ▼ No   □
30 % of total cover.		or total cover.		Tresent: Tes [1] NO [1]
Remarks: (If observed, list morphological adaptatio	ns below)			
Remarks. (II observed, list morphological adaptatio	iis below).			

SOIL Sampling Point: BRBR-WET21-SP

Profile Des	cription: (Describe	to the depth	needed	to docume	ent the in	dicator or c	onfirm the a	bsenc	e of indicator	s.)			
Depth	Matrix			Re	edox Feat	ures							
(inches)	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Т	exture		Remar	ks	
0-5	10YR 4/1	95	10YF	R 5/8	5	С	M	Sil	ty Clay				
5-12+	10YR 6/1	70	10YF	R 6/8	10	С	М	Sar	ndy Clay				
	10YR 7/2	20						Sar	ndy Clay				
	_												
1													
	Concentration, D=Depl						•		cation: PL=Po				
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)											-		
	sol (A1)			-		ırface (S8) <b>(</b>			1 cm Muck (	, ,			
Histic	Epipedon (A2)			Thin Dark	Surface (	S9) <b>(LRR S</b> ,	, T, U)		2 cm Muck (	A10) <b>(LRF</b>	R S)		
	Histic (A3)			Loamy Mu	ucky Mine	ral (F1) <b>(LR</b> l	R O)		Reduced Ve	ertic (F18) (	(outside	MLRA 1	50A,B)
Hydro	ogen Sulfide (A4)		~	Loamy Gle	eyed Matr	ix (F2)			Piedmont Fl	oodplain S	Soils (F1	9) <b>(LRR</b>	P, S,T)
Strati	fied Layers (A5)			Depleted I	Matrix (F3	3)			Anomalous I	-	my Soils	s (F20)	
□  Orgai	nic Bodies (A6) (LRR F	P, T, U)		Redox Da	rk Surface	e (F6)			(MLRA 153	3B)			
<b>□</b> 5 cm	Mucky Mineral (A7) <b>(L</b>	RR P, T, U)		Depleted I	Dark Surf	ace (F7)			Red Parent	Material ( <sup>-</sup>	ΓF2)		
Muck	Presence (A8) (LRR L	J)		Redox De	pressions	(F8)			Very Shallov	v Dark Su	rface (T	F12) <b>(LR</b>	R T,U)
	Muck (A9) (LLR P, T)			Marl (F10)	(LRR U)			Other (Explain in Remarks)					
<b>□</b> Deple	ted Below Dark Surfac	ce (A11)		Depleted (	Ochric (F	11) <b>(MLRA 1</b>	51)						
<b>□</b> Thick	Dark Surface (A12)			Iron-Mang	janese Ma	asses (F12)	(LRR O, P, T	T) <sup>3</sup> Indicators of hydrophytic vegetation and					n and
Coas	Prairie Redox (A16) (	MLRA 150A)		Umbric Sı	urface (F1	3) (LRR P, 1	Γ, U)	wetland hydrology must be present,					nt,
Sand	y Mucky Mineral (S1) (	(LLR O, S)		Delta Och	ric (F17) (	(MLRA 151)		Unless disturbed or problematic					;
Sand	y Gleyed Matrix (S4)			Reduced '	Vertic (F1	8) <b>(MLRA 1</b> 5	50A, 150B)						
Sand	y Redox (S5)			Piedmont	Floodplai	n Soils (F19	) (MLRA 149	A)					
	ed Matrix (S6)			Anomalou	ıs Bright L	oamy Soils.	(F20) <b>(MLRA</b>	149A,	153C, 153D)				
	Surface (S7) (LRR P, S	s, ı, u)											
	Layer (if observed):												
	nches):						Hydr	ic Soil	Present?	Yes	~	No	
	,						, ,				, ,		
Remarks:													

Project/Site: I-95 ETL Northbound	I Extension	City/County: Ba	Itimore	Sampling Date: 8/21/17					
Applicant/Owner: Maryland Trans				ID Sampling Point: BRBR-WET21-UPL					
Investigator(s): E. Markel, S. Knig	-	Section, Township, Range: Joppa							
Landform (hillslope, terrace, etc.):		Local relief (concave, convex, none): None Slope (%): 5							
Subregion (LRR or MLRA): MLRA		Lat: 39.393887	Long:	-76.432641 Datum: NAD 83					
, <u> </u>									
Soil Map Unit Name: MpB - Mour		-		WI classification: Upland					
Are climatic/hydrologic conditions on	• •	•	I No □						
Are Vegetation Soil		significantly disturbed		umstances" present? Yes 🔽 No 🔲					
Are Vegetation Soil	or Hydrology 🔲 r	naturally problematic?	(If needed, explair	any answers in Remarks.)					
SUMMARY OF FINDINGS – A	Attach site map sho	wing sampling p	point locations, t	transects, important features, etc.					
Hydrophytic Vegetation Present?	Yes 🔲 N	o 🔽							
Hydric Soil Present?	Yes 🔽 N	o 🔲 is t	the Sampled Area	Yes No 🔽					
Wetland Hydrology Present?	Yes  □  N	Wi	thin a Wetland?						
Remarks:									
HYDROLOGY									
Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one	is required; check all that	apply)		Surface Soil Cracks (B6)					
Surface Water (A1)	Aquat	tic Fauna (B13)		Sparsely Vegetated Concave Surface (B8)					
	☐ Mari [	Deposits (B15) <b>(LLR I</b>	J)	✓ Drainage Patterns (B10)					
Saturation (A3)		ogen Sulfide Odor (C1		Moss Trim Lines (B16)					
Water Marks (B1)	<u></u>	zed Rhizospheres on		Dry-Season Water Table (C2)					
Sediment Deposits (B2)	•	ence of Reduced Iron	,	Crayfish Burrows (C8)					
Drift Deposits (B3)	<u></u>	nt Iron Reduction in T	illed Soils (C6)	Saturation Visible on Aerial Imagery (C9)					
Algal Mat or Crust (B4)	<u></u>	Muck Surface (C7)		Geomorphic Position (D2)					
Iron Deposits (B5)	• •	(Explain in Remarks)	)	Shallow Aquitard (D3)					
Inundation Visible on Aerial In	nagery (B7)			FAC-Neutral Test (D5)					
Water-Stained Leaves (B9)				Sphagnum moss (D8)(LRR T, U)					
Field Observations:									
Surface Water Present? Yes	□ No □ Dep	th (inches):	_						
Water Table Present? Yes	□ No □ Dep	th (inches):	_						
Saturation Present? Yes (includes capillary fringe)	□ No □ Dep	th (inches):	_ Wetland Hydro	plogy Present? Yes No					
Describe Recorded Data (stream ga	uge, monitoring well, aeria	al photos, previous ins	spections), if available	<b>:</b> :					
Remarks:									
No geomorphic position, no hydrolog	ЭУ								

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

Tree Stratum (	Plot size: 30' )		solute Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Acer rubrum			25	Yes	FAC	Number of Dominant Species
2. Liquidambar s	styraciflua		25	Yes	FAC	That Are OBL, FACW, or FAC:  (A)
Nyssa sylvation	•		5	No	FAC	Total Number of Dominant
4. Liriodendron t			5	No	FACU	Species Across All Strata:
5. Ulmus americ	•		5	No	FAC	Percent of Dominant Species
6. Fagus grandit			5	 No	FACU	That Are OBL, FACW, or FAC:  (A/B)
7.						
8.						Prevalence Index Worksheet:
			70	= Total Cover		Total % Cover of: Multiply by:
	50% of total cover:	35	2	20% of total cover:	14	OBL species x1=
Sapling/Shrub Str	<del>-</del>		)			FACW species x2=
Fraxinus peni			3	No	FACW	FAC species x3=
2. Rosa multiflor			10	Yes	FACU	FACU species x4=
3. Lindera benzo			3	No No	FACW	UPL species x5=
4. Lonicera tatar			10	Yes	FACU	Column Totals: (A) (B)
5. Quercus rubra			3	No No	FACU	
6.						Prevalence Index = B/A =
-						Hydrophytic Vegetation Indicators:
•						1 - Rapid Test for Hydrophytic Vegetation
			29	= Total Cover		2 - Dominance Test is > 50%
	50% of total cover:	14.5	2	20% of total cover:	5.8	3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
Herb Stratum	(Plot size:30'	)				Problematic Hydrophytic Vegetation <sup>1</sup>
1. Parthenociss	sus quinquefolia		20	Yes	FACU	(Explain)
2. Lonicera jap	oonica	_	20	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology
3. Fraxinus per	nnsylvanica	_	5	No	FACW	must be present, unless disturbed or problematic.
4. Leersia virgi	inica	_	20	Yes	FACW	Definitions of Four Vegetation Strata:
5. Liriodendron	n tulipifera	_	5	No	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6
6. Celastrus or	biculatus	_	20	Yes	FACU	cm) or more in diameter at breast height (DBH),
7. Thelypteris r	noveboracensis		10	No	FAC	regardless of height.
8. Quercus mo	ntana		5	No	UPL	Sapling/Shrub – Woody plants, excluding vines,
9. Onoclea sen	nsibilis		5	No	FACW	less than 3 in. DBH and greater than 3.28 ft (1m)
10						tall.
11						<b>Herb</b> – All herbaceous (non-woody) plants,
12						regardless of size, and woody plants less than
			110	= Total Cover		3.28 ft tall.
	50% of total cover: _	55	20	% of total cover:	22	<b>Woody vine</b> – All woody vines greater than 3.28 ft
<b>Woody Vine Strate</b>	um (Plot size: 30'	)				in height.
1. Celastrus or	biculatus		5	Yes	FACU	
2. Toxicodendr	ron radicans		5	Yes	FAC	
3. Smilax rotun	ndifolia		5	Yes	FAC	
4						
5						Hydrophytic
			15	= Total Cover		Vegetation
	50% of total cover: _	7.5	2	20% of total cover:	3	Present? Yes No
Remarks: (If obse	erved, list morphological adaptat	ions be	low).			

SOIL Sampling Point: BRBR-WET21-UPL

Profile Descri	ption: (Describe	to the depth	needed	to docume	nt the inc	dicator or c	onfirm the a	bsenc	e of indicator	·s.)			
Depth	Matrix			Re	dox Feat	ures							
(inches)	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	T	exture		Remar	ks	
0-3	2.5Y 5/2	95	10Y	R 4/6	5	С	M	Cla	y Loam				
3-8+	2.5Y 6/4	95	10Y	R 5/8	5	C	M	Sandy Clay					
				_									
1 <sub>Type: C=Cor</sub>	ncentration D-Denk	etion RM-R	duced N	Matrix MS-N	Macked S	and Grains		21.00	ation: PL=Po	re Lining	M-Matri		
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)									cators for Pro				
Histosol							LRR S, T,U)	П	1 cm Muck (	A9) (LRR	0)		
	oipedon (A2)			-		S9) (LRR S,			2 cm Muck (	, , ,			
									·	, ,	•	MI DA 4	E04 D)
	stic (A3)				•	ral (F1) <b>(LR</b> l	K ()		Reduced Ve				
	en Sulfide (A4)		~	Loamy Gle	•	. ,			Piedmont FI		-		P, S, I)
	d Layers (A5)			Depleted N	·			Ш	Anomalous (MLRA 153	-	my Soils	; (F20)	
<b>I</b> □  Organic	Bodies (A6) (LRR P	P, T, U)		Redox Dai	rk Surface	e (F6)			(MERA 100	<i>3</i> 5,			
	ucky Mineral (A7) <b>(L</b>	RR P, T, U)		Depleted [	Dark Surfa	ace (F7)			Red Parent	Material (	ΓF2)		
Muck Pr	resence (A8) (LRR U	J)		Redox Dep	pressions	(F8)			Very Shallov	w Dark Su	rface (TI	=12) <b>(LR</b>	R T,U)
	uck (A9) (LLR P, T)			Marl (F10)	(LRR U)				Other (Expla	ain in Rem	arks)		
Deplete	d Below Dark Surfac	ce (A11)		Depleted (	Ochric (F	11) <b>(MLRA 1</b>	51)						
Thick Da	ark Surface (A12)			Iron-Mang	anese Ma	asses (F12)	(LRR O, P, T)	P, T) <sup>3</sup> Indicators of hydrophytic vegetation and					and
Coast P	rairie Redox (A16) (	MLRA 150A)		Umbric Su	ırface (F1	3) <b>(LRR P, 1</b>	Γ, U)	wetland hydrology must be present,					
Sandy N	Mucky Mineral (S1) <b>(</b>	LLR O, S)		Delta Ochi	ric (F17) <b>(</b>	(MLRA 151)			Unles	s disturbe	d or pro	blematic	:
Sandy €	Gleyed Matrix (S4)			Reduced \	/ertic (F1	8) <b>(MLRA 1</b>	50A, 150B)						
Sandy F	Redox (S5)			Piedmont	Floodplai	n Soils (F19	) (MLRA 149)	<b>A</b> )					
	l Matrix (S6) rface (S7) <b>(LRR P, S</b>	S, T, U)		Anomalou	s Bright L	oamy Soils.	(F20) <b>(MLRA</b>	149A,	153C, 153D)				
	yer (if observed):	-											
	nes):						Hydr	ic Soil	Present?	Yes	~	No	
Remarks:													

Project/Site: I-95 ETL Northbound Extension	City/County: Baltimore	Sampling Date: 8/9/17
Applicant/Owner: Maryland Transportation Authority	State:	MD Sampling Point: WET D-SP
Investigator(s): _E. Markel, M. McCormick	Section, Township, Range: Jopp	pa
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): MLRA 149	Lat: <u>39.393887</u> Long:	-76.432641 Datum: NAD 83
Soil Map Unit Name: IsA – Issue silt loam, occasionally flo	oded	NWI classification: PFO
Are climatic/hydrologic conditions on the site typical for this tir	me of year? Yes 🔽 No	(If no, explain in Remarks.)
Are Vegetation Soil or Hydrology	significantly disturbed? Are "Normal Ci	rcumstances" present? Yes 🔽 No 🔲
Are Vegetation Soil or Hydrology	naturally problematic? (If needed, expla	ain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	owing sampling point locations	, transects, important features, etc.
Hydrophytic Vegetation Present? Yes ✓ N	lo  □	
Hydric Soil Present? Yes ☑ N	lo Is the Sampled Area	Yes 🔽 No 🗀
Wetland Hydrology Present? Yes ✓ N	No Within a Wetland?	
Remarks:		
Seasonally saturated/ flooded, located downslope of road em	bankment discharges to streams	
could all indicated incourage and incourage of road one	zamanoni, dicenarges to calcame.	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that		Surface Soil Cracks (B6)
	atic Fauna (B13) Deposits (B15) <b>(LLR U)</b>	<ul><li>✓ Sparsely Vegetated Concave Surface (B8)</li><li>✓ Drainage Patterns (B10)</li></ul>
l	ogen Sulfide Odor (C1)	Moss Trim Lines (B16)
	ized Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
	ence of Reduced Iron (C4)	Crayfish Burrows (C8)
☐ Drift Deposits (B3) ☐ Rece	ent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Muck Surface (C7)	Geomorphic Position (D2)
☐ Iron Deposits (B5) ☐ Othe	r (Explain in Remarks)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral Test (D5)
▼ Water-Stained Leaves (B9)		Sphagnum moss (D8)(LRR T, U)
Field Observations:		
Surface Water Present? Yes   Verification V	oth (inches):1	
Water Table Present? Yes   ✓ No   Dep	oth (inches):4	
Saturation Present? Yes  No Dep	oth (inches): 4 Wetland Hyd	Irology Present? Yes 🔽 No 🗀
Describe Recorded Data (stream gauge, monitoring well, aeri	ial photos, previous inspections), if availab	ole:
Remarks:		
Fed by road runoff and potentially groundwater.		

/EGETATION (Four Strata) – Use scientific names o	of planta	Sampling Point:	WET D-SP
<b>/EGETATION (Four Strata) –</b> Use scientific fiames o	n piants.		

Tree Stratum	( Plot size:30')	Absolu <u>% Cov</u>		Dominant Species?	Indicator Status	Dominance Test Worksheet:		
1. Fraxinus pe	ennsylvanica	25	;	Yes	FACW	Number of Dominant Species		
2. Liquidamba	. '"			Yes	FAC	That Are OBL, FACW, or FAC:	8	(A)
_	ar styracıflua					Total Number of Dominant	11	- (B)
4						Species Across All Strata:		- ` /
5						Percent of Dominant Species	73%	(A/B)
6.						That Are OBL, FACW, or FAC:	1370	(,,,,,,
-								-
						Prevalence Index Worksheet:		
		45	=	Total Cover		Total % Cover of:	Multiply by	<u>y:</u>
	50% of total cover:	22.5	20%	of total cover:	9	OBL species x1	=	
Sapling/Shrub	Stratum (Plot size: 30'	)				FACW species x2	<u>:</u> =	
Acer rubrui				Yes	FAC		S=	
	onneulyonica			Yes	FACW		.=	
		_ <u> </u>						
				Yes	FACU		j=	
1. <u>Lindora bor</u>				Yes	FACU	Column Totals: (A)		— <sup>(B)</sup>
5. Rosa multin	nora	5		Yes	_FACU_	Prevalence Index = B/A =		_
7		_				Hydrophytic Vegetation Indi		
8						1 - Rapid Test for Hyd	rophytic Veg	etation
		30	=	Total Cover		X 2 - Dominance Test is	> 50%	
	50% of total cover:	15	20%	of total cover:	6	3 - Prevalence Index is	$s \le 3.0^{1}$	
Herb Stratum	(Plot size: 30'	)				Problematic Hydrophy	tic Vegetatio	n <sup>1</sup>
1. Lindera be	•	2		No	FACW		(E	Explain)
2. Smilax rot		- — <u> </u>		No No	FAC	<sup>1</sup> Indicators of hydric soil and we	etland hvdrol	loav
3. Rosa muli		_ <u> </u>		No	FACU	must be present, unless disturb		
	pennsylvanica	2		No	FACW	Definitions of Four Vegetation	n Strata	
-	ndron radicans	- <u>- 2</u>		No	FAC			( <del>7</del> 0
						Tree – Woody plants, excluding cm) or more in diameter at brea		
	cissus quinquefolia			No	_FACU_	regardless of height.	ist fieight (Di	Di 1),
7. Carex luri		10		Yes	OBL_			
8. <u>Carex vul</u>	pinoidea	5		No	FACW	Sapling/Shrub – Woody plants	, excluding v	vines,
9. <u>Leersia vi</u>	rginica	30		Yes	_FACW_	less than 3 in. DBH and greater tall.	than 3.28 π	(1m)
10. Phragmite	es australis	2		No	FACW	taii.		
11						Herb – All herbaceous (non-wo	ody) plants,	
12		_				regardless of size, and woody	plants less th	ıan
		68	; =	Total Cover		3.28 ft tall.		
	50% of total cover:	34	20%	of total cover:	13.6	Woody vine – All woody vines	greater than	3.28 ft
Woody Vine Str	ratum (Plot size: 30'	)				in height.		
	ndron radicans	′ 5		Yes	FAC			
	cissus quinquefolia	2		Yes	FACU			
	•			163	1700			
4		_						
5		_				Hydrophytic		
		7				Vegetation		
	50% of total cover: _	3.5	20%	of total cover:	1.4	Present? Yes	No	
Remarks: (If ob	served, list morphological adaptati	ions below	<i>ı</i> ).					
			,					

Profile Descrip	tion: (Describe	to the depth	needed	to documer	nt the inc	licator or c	onfirm th	he absence	e of indicato	rs.)			
Depth	Matrix			Re	dox Featı	ıres		_					
(inches)	Color (moist)	%	Color (	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Te	exture		Remar	ks	
0-3	10YR 3/2	98	7.5YI	₹ 5/6	2	C	M	Silty 0	Silty Clay Loam				
3-5	10YR 5/2	60	10YF	₹ 5/6	_40_	C	M	(	Clay				
5-8	10YR 4/6	93	10YF	₹ 4/6	2	C	M		Clay				
			10YF	२ 7/8	5	C	M		Clay				
8-16+	10YR 6/8	70	Gley	1 7/N	30	D	M		Clay				
<sup>1</sup> Type: C=Cond	centration, D=Depl	etion, RM=Re	duced M	latrix, MS=N	/lasked S	and Grains.		<sup>2</sup> Loc	ation: PL=Pc	re Lining, I	M=Matri	X.	
Hydric Soil Ind	licators: (Applica	ble to all LRR	s, unles					Indic	ators for Pro	oblematic	Hydric	Soils <sup>3</sup> :	
Histosol (	A1)			Polyvalue <b>T,U)</b>	Below St	ırface (S8) <b>(</b>	LRR S,		1 cm Muck	(A9) <b>(LRR</b>	O)		
Histic Epi	pedon (A2)				Surface	(S9) (LRR S	T, U)		2 cm Muck	(A10) <b>(LR</b> R	≀ S)		
☐ Black His	tic (A3)			Loamy Mu	icky Mine	ral (F1) <b>(LR</b>	R 0)		Reduced Ve	ertic (F18) <b>(</b>	outside	MLRA 1	50A,B)
Hydroger	Sulfide (A4)			Loamy Gle	eyed Mat	rix (F2)			Piedmont F				P, S,T)
	Layers (A5)		~	Depleted I	•	,			Anomalous		my Soils	s (F20)	
	Bodies (A6) (LRR F			Redox Da					(MLRA 153E	•			
	cky Mineral (A7) (L			Depleted [		` ,			Red Parent			540\ # <b>5</b>	
	esence (A8) (LRR U	J)	Ш	Redox De	•	s (F8)			Very Shallo			F12) <b>(LR</b>	R 1,U)
	ck (A9) <b>(LLR P, T)</b> Below Dark Surfa	co (A11)		Marl (F10)		11) <b>(MLRA 1</b>	E4\		Other (Expla	am m Kem	arks)		
	rk Surface (A12)	Ce (ATT)				asses (F12)		P T\	Sindicator	a of budron	abidia i	aatatian	and
•	airie Redox (A16) <b>(</b>	(MLRA 150A)		•		3) <b>(LRR P</b> , 1	•	.,.,		s of hydrop	-	-	
P-1	ucky Mineral (S1) (	-				(MLRA 151)	., .,			d hydrology ss disturbe			ιι,
	eyed Matrix (S4)	(				8) <b>(MLRA 1</b> :	50A. 150I	В)	Office	ss distuibe	u oi pio	Diematic	
	edox (S5)				,	n Soils (F19		•					
	Matrix (S6)					-			153C, 153D)				
☐ Dark Surf	face (S7) <b>(LRR P, S</b>	S, T, U)											
	ver (if observed):												
Туре:													
Depth (inche	es):						Н	lydric Soil	Present?	Yes	~	No	
Remarks:													
Remarks:													

Project/Site: I-95 ETL Northbound I	Extension		City/County:	Baltimore	Sampling Date: 7/27/1	7					
Applicant/Owner: Maryland Transp	ortation Autho	ority		State: MD Sampling Point: BRBR-WET22-SP2							
Investigator(s): E. Markel, M. McCo	rmick		Section, Township, Range: Joppa								
Landform (hillslope, terrace, etc.):	Depression		Local relief (concave, convex, none): Flat Slope (%): 1								
Subregion (LRR or MLRA): MLRA	149		_ Lat: _39.394	137 Long:	76.432813	NAD 83					
Soil Map Unit Name: MpB – Mount	Lucas silt loa	am, 3 to 8 p	percent slopes		NWI classification: PEM						
Are climatic/hydrologic conditions on t	he site typica	al for this tin	ne of year? Ye	es 🔽 No 🖡	(If no, explain in Remarks.)						
Are Vegetation Soil	or Hydrology	y 🔲 :	significantly distu	rbed? Are "Normal Cir	cumstances" present? Yes 🔽 N	No 🔲					
Are Vegetation Soil	or Hydrology	у 🔲 і	naturally problem	atic? (If needed, expla	in any answers in Remarks.)						
SUMMARY OF FINDINGS – A	ttach site	map sho	wing sampli	ng point locations,	transects, important features	, etc.					
Hydrophytic Vegetation Present?	Yes	<b>▽</b> N	lo 🔲								
Hydric Soil Present?	Yes		lo 🔲	Is the Sampled Area	Yes 🔽 No	1					
Wetland Hydrology Present?	Yes	<b>▽</b> N	lo 🔲	Within a Wetland?							
Remarks:											
			TI Castian 100								
Toe of slope depression. Wetland was	s delineated t	under 1-95 i	ETL Section 100	permit.							
HYDROLOGY											
Wetland Hydrology Indicators:					Secondary Indicators (minimum of two	required)					
Primary Indicators (minimum of one is	required; ch	eck all that	apply)		Surface Soil Cracks (B6)						
Surface Water (A1)	J	□ Aqua	tic Fauna (B13)		Sparsely Vegetated Concave S	urface (B8)					
High Water Table (A2)	J		Deposits (B15) <b>(L</b>	-	Drainage Patterns (B10)						
Saturation (A3)			ogen Sulfide Odo		Moss Trim Lines (B16)						
Water Marks (B1)				s on Living Roots (C3)	Dry-Season Water Table (C2)						
Sediment Deposits (B2)  Drift Deposits (B3)		-	ence of Reduced	i in Tilled Soils (C6)	Crayfish Burrows (C8) Saturation Visible on Aerial Ima	gory (CO)					
☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4)		-	Muck Surface (C		<ul><li>☐ Saturation Visible on Aerial Ima</li><li>☑ Geomorphic Position (D2)</li></ul>	gery (C9)					
Iron Deposits (B5)			r (Explain in Rem	,	Shallow Aquitard (D3)						
Inundation Visible on Aerial Ima			(=/(=/(=/(-1/1))	u)	FAC-Neutral Test (D5)						
 Water-Stained Leaves (B9)					Sphagnum moss (D8)(LRR T, L	J)					
Field Observations:											
	▼ No	<b>□</b> I Dep	th (inches):	2							
Water Table Present? Yes			th (inches):								
Saturation Present? Yes			th (inches):	Wetland Hvd	rology Present? Yes	No 🔲					
(includes capillary fringe)			·								
Describe Recorded Data (stream gau	ge, monitoring	g well, aeri	al photos, previou	us inspections), if availab	le:						
Remarks:											
romano.											

Sampling Point:	BRBR-WET22-SP2
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#### **VEGETATION (Four Strata)** – Use scientific names of plants.

Number of Dominant Species   1
Species Across All Strata:
Percent of Dominant Species That Are OBL, FACW, or FAC:    Prevalence Index Worksheet:   Total % Cover of:
Prevalence Index Worksheet:    Total % Cover of:
tal Cover of: Multiply by:    Data Cover   Data Cover
tal Cover of: Multiply by:    Data Cover   Data Cover
OBL species         x1=           FACW species         x2=           FAC species         x3=           FACU species         x4=           UPL species         x5=           Column Totals:         (A)         (B)           Prevalence Index = B/A =         Hydrophytic Vegetation Indicators:           1 - Rapid Test for Hydrophytic Vegetation         X 2 - Dominance Test is > 50%           otal Cover:         3 - Prevalence Index is ≤ 3.0¹           problematic Hydrophytic Vegetation¹         (Explain)           Yes         FACW           No         FACW           No         FACU           No         FACU           No         OBL           Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
FACW speciesx2=
FAC speciesx3=
FACU speciesx4=
UPL species         x5=           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 ≤ 3.0¹           Problematic Hydrophytic Vegetation¹         (Explain)           No         FACW           No         FACW           No         FACU           No         FACU           No         OBL           Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
Column Totals:
Prevalence Index = B/A =    Hydrophytic Vegetation Indicators:   1 - Rapid Test for Hydrophytic Vegetation     2
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is > 50%  3 - Prevalence Index is ≤ 3.0¹  Problematic Hydrophytic Vegetation¹  (Explain)  No FACW No FACW No FACU No OBL  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
1 - Rapid Test for Hydrophytic Vegetation   X
total Cover    X   2 - Dominance Test is > 50%   3 - Prevalence Index is ≤ 3.0¹   Problematic Hydrophytic Vegetation¹   (Explain)   No
total Cover    X   2 - Dominance Test is > 50%   3 - Prevalence Index is ≤ 3.0¹   Problematic Hydrophytic Vegetation¹   (Explain)   No
Action     3 - Prevalence Index is ≤ 3.0¹       Problematic Hydrophytic Vegetation¹     (Explain)       No     FACW       No     FACW       No     FACU       No     Definitions of Four Vegetation Strata:       No     OBL       Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
Problematic Hydrophytic Vegetation 1  (Explain)  No FACW No FACU No FACU No OBL  Problematic Hydrophytic Vegetation 1  (Explain)  1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
Yes       FACW       (Explain)         No       FACW       1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         No       FACU       Definitions of Four Vegetation Strata:         No       OBL       Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
No FACW No FACU No FACU No OBL  1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
No FACW must be present, unless disturbed or problematic.  No FACU Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
No FACU OBL Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
No OBL Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
cm) or more in diameter at breast height (DBH),
regardless of height.
Sapling/Shrub – Woody plants, excluding vines,
less than 3 in. DBH and greater than 3.28 ft (1m) tall.
tail.
<b>Herb</b> – All herbaceous (non-woody) plants,
regardless of size, and woody plants less than
tal Cover 3.28 ft tall.
al cover:16 Woody vine – All woody vines greater than 3.28 ft
in height.
Hydrophytic Variation
vegetation
otal cover: Present? Yes V No
,

Sampling Point: BRBR-WET22-SP2

Profile Descrip	otion: (Describe t	o the depth	needed	to docume	nt the inc	dicator or c	onfirm the	absenc	e of indicato	rs.)			
Depth	Matrix			Re	dox Featu	ıres							
(inches)	Color (moist)	<u></u> %	Color (	(moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup> _	T	exture		Remarl	ks	
0-2	10YR 3/2	98	10YF	₹ 8/8	2	C	M	Cla	y Loam				
2-8	10YR 5/2	60	Gley1	8/10Y	_20_	D	M		Clay				
			10YF	₹ 5/8	20	C	M		Clay				
8-12+	10YR 5/2	60	Gley2	8/10B	_40_	D	M		Clay				
								-					
	centration, D=Deple						•		cation: PL=Po				
l	licators: (Applicat	ole to all LRF	∢s, unies			urface (S8)	(LRR S,				-	3011S *:	
Histosol (				T,U)					1 cm Muck				
	ipedon (A2)					(S9) <b>(LRR S</b> eral (F1) <b>(LR</b>			2 cm Muck Reduced V	, , ,	•	MI DA 1	504 D)
l <u>:</u> :	n Sulfide (A4)			Loamy Gl	•	. , .	.K O)		Piedmont F	, , ,	-		
	Layers (A5)		~	Depleted	•	` '			Anomalous				1,0,1,
l <u>:</u> :	Bodies (A6) (LRR P	, T, U)		Redox Da		•			(MLRA 153)	-	,	( - /	
☐ 5 cm Mud	cky Mineral (A7) <b>(LI</b>	RR P, T, U)		Depleted	Dark Surf	ace (F7)			Red Parent	Material (1	ΓF2)		
☐   Muck Pre	esence (A8) (LRR U	)		Redox De	epressions	s (F8)			Very Shallo	w Dark Sui	rface (TI	F12) <b>(LR</b>	R T,U)
1 cm Mud	ck (A9) (LLR P, T)		Marl (F10) (LRR U) Other (Explain in Remarks)										
Depleted	Below Dark Surfac	e (A11)		Depleted	Ochric (F	11) <b>(MLRA</b>	151)						
- ·	rk Surface (A12)			_		, ,	(LRR O, P,	T)	<sup>3</sup> Indicato	rs of hydrop	ohytic ve	egetation	and
P-1	airie Redox (A16) (I	-				3) (LRR P,				d hydrology			
l <u></u>	ucky Mineral (S1) (	LLR O, S)			, ,	(MLRA 151)			Unle	ss disturbe	d or prol	blematic	;
	leyed Matrix (S4) edox (S5)				,	, ,	<b>50A, 150B)</b> 9) <b>(MLRA 14</b> :	0.4.\					
	Matrix (S6)				•	,	, -	-	, 153C, 153D)				
1	face (S7) <b>(LRR P, S</b>	s. T. U)	,	7110111010	ao Brigint E	odiny conc	(1 20) <b>(IIIL</b> IX	A 140A,	, 1000, 1000)				
		,, ., .,											
Type:	yer (if observed):												
Depth (inche	es):						Hyd	ric Soil	Present?	Yes	~	No	
Remarks:													

Project/Site: I-95 ETL Northbound E	xtension	City/	County: Baltim	iore	Samp	ling Date:7/	/27/17
Applicant/Owner: Maryland Transpo	rtation Authori	ity		State: _	MD Samp	ling Point: BI	RBR-WET22-SP1
Investigator(s): _E. Markel, M. McCor	mick	Sect	ion, Township, Ra	nge: Jopp	a		
Landform (hillslope, terrace, etc.):	oe of slope	Loca	ıl relief (concave,	convex, none):	Concave	Slope (%	%): <u>1</u>
Subregion (LRR or MLRA): MLRA 1	49	Lat:	39.394137	Long:	-76.432813	Datum	: NAD 83
Soil Map Unit Name: MpB – Mount I	_ucas silt loan	n, 3 to 8 percent	slopes		NWI classification:	PSS	
Are climatic/hydrologic conditions on the	e site typical f	for this time of y	ear? Yes	▼ No [	(If no, expla	ain in Remarks.)	)
Are Vegetation Soil	or Hydrology	signific	antly disturbed?	Are "Normal Cir	cumstances" prese	ent? Yes 🔽	No 🔲
Are Vegetation	or Hydrology	natural	y problematic?	(If needed, expla	nin any answers in R	emarks.)	
SUMMARY OF FINDINGS – Att	ach site m	ap showing	sampling po	int locations,	, transects, im	portant featu	ıres, etc.
Hydrophytic Vegetation Present?	Yes	<b>☑</b> No					
Hydric Soil Present?	Yes	<b>▼</b> No	Is the	Sampled Area	Yes	<b>▼</b> No	
Wetland Hydrology Present?	Yes	<b>▼</b> No	Withi	n a Wetland?			
Remarks:							
Wetland was delineated under I-95 ET	Coation 100	normit					
Wetland was delineated under 1-93 ET	_ Section 100	permit.					
HYDROLOGY							
Wetland Hydrology Indicators:					Secondary Indica		of two required)
Primary Indicators (minimum of one is					· <u></u> :	oil Cracks (B6)	
Surface Water (A1)		•				_	ve Surface (B8)
☐ High Water Table (A2) ☐ Saturation (A3)			ts (B15) <b>(LLR U)</b> ulfide Odor (C1)			Patterns (B10) Lines (B16)	
Water Marks (B1)			izospheres on Liv	ing Roots (C3)		n Water Table (0	22)
Sediment Deposits (B2)		Ī.	Reduced Iron (C4			urrows (C8)	<i>32</i> )
Drift Deposits (B3)		-	Reduction in Tille	•		Visible on Aerial	I Imagery (C9)
Algal Mat or Crust (B4)		Thin Muck S		, ,	<u> </u>	ic Position (D2)	
Iron Deposits (B5)		Other (Expla	ain in Remarks)		Shallow Ac	ղuitard (D3)	
Inundation Visible on Aerial Imag	jery (B7)				FAC-Neutra	al Test (D5)	
Water-Stained Leaves (B9)					□ Sphagnum	moss (D8)(LRR	! T, U)
Field Observations:							
Surface Water Present? Yes	No 🗀	Depth (incl	nes): 2				
Water Table Present? Yes	No <b></b> ✓	Depth (incl	nes):				
Saturation Present? Yes (includes capillary fringe)	No 🗀	Depth (incl	nes):1	Wetland Hyd	rology Present?	Yes	No 🔲
Describe Recorded Data (stream gaug	e, monitoring	well, aerial phot	os, previous inspe	ctions), if availab	le:		
Remarks:							
Fed by roadside drainage, including BF	≀IS-WET3. Po	ssibly intercepts	groundwater.				

Sampling Point:	BRBR-WET22-SP1
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#### **VEGETATION (Four Strata)** – Use scientific names of plants.

<u>Tree Stratum</u> ( Plot size:30' )	Absolute <u>% Cover</u>	Dominant Species?	Indicator Status	Dominance Test Worksheet:		
1. 2.				Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
3.				Total Number of Dominant Species Across All Strata:	4	(B)
5.				Percent of Dominant Species	100%	(A/D)
6.				That Are OBL, FACW, or FAC:		(A/B)
7.				Prevalence Index Worksheet:		
8		Total Cover		Total % Cover of:	Multiply by:	
50% of total cover:		% of total cover:		OBL species x1=		
Sapling/Shrub Stratum (Plot size: 30'		or total dever.		FACW species x2=		
Fraxinus pennsylvanica	/ 50	Yes	FACW		:	
2. Rubus sp.	10	No	NA		:	
3.					:	
4.				Column Totals: (A)		
5.				Prevalence Index = B/A =		
6 7.				Hydrophytic Vegetation Indic	ators:	
7. 8.				1 - Rapid Test for Hydro		tation
		Total Cover		X 2 - Dominance Test is >		
50% of total cover:		% of total cover:	12	3 - Prevalence Index is		
Herb Stratum (Plot size: 30'				Problematic Hydrophytic	_	1
Parthenocissus quinquefolia	10	No	FACU	_ , , ,	-	plain)
Toxicodendron radicans	25	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wet	land hydrolo	av
3. Leersia virginica	25	Yes	FACW	must be present, unless disturbe	d or problem	natic.
4. Liquidambar styraciflua	5	No No	FAC	Definitions of Four Vegetation	Strata:	
5. Fraxinus pennsylvanica	5	No No	FACW	Tree – Woody plants, excluding		7.6
6. Rubus sp.	5	No	NA	cm) or more in diameter at breas regardless of height.		
7. 8.				Sapling/Shrub – Woody plants,	oveluding vi	nos
9.				less than 3 in. DBH and greater		
10.				tall.		
11.				Herb – All herbaceous (non-woo	dy) plante	
12.				regardless of size, and woody pla		ın
	 75 :	= Total Cover		3.28 ft tall.		
50% of total cover:	37.5 20%	of total cover:	15	Woody vine – All woody vines g	reater than 3	3.28 ft
Woody Vine Stratum (Plot size: 30'	)			in height.		
Toxicodendron radicans	10	Yes	FAC			
2.						
3.						
4.						
5.						
	10 :	= Total Cover		Hydrophytic Vegetation		
50% of total cover:	5 209	% of total cover:	2	Present? Yes	No	
Remarks: (If observed, list morphological adaptatio	ns below).					

Sampling Point: BRBR-WET22-SP1

SOIL

Profile Descrip	tion: (Describe to	the depth	needed 1	o documer	nt the inc	dicator or co	onfirm the	absence of indica	tors.)			
Depth	Matrix			Rec	dox Feat	ures						
_(inches)_	Color (moist)	%	Color (	moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remar	ks	
0-2	10YR 3/2	98	10YF	₹ 5/6	2	C	M	Clay Loam				
2-6	10YR 4/1	60	10YF	₹ 6/8	_20_	C	M	Clay Loam				
			10YF	₹ 6/8	_20_	C	M	Clay Loam				
6-12+	7.5YR 6/8	95_	10YF	₹ 6/1	5	D	M	Clay Loam				
•	centration, D=Deple							<sup>2</sup> Location: PL=				
	icators: (Applicab	le to all LRR	ks, unles			) urface (S8) <b>(</b>	LRR S.	Indicators for		-	Soils ":	
Histosol (	ŕ			T,U)		, , ,			ck (A9) (LRR			
	pedon (A2)					(S9) (LRR S,		<u> </u>	ck (A10) (LRF	-		
Black Hist				•	•	eral (F1) <b>(LRI</b>	R O)	<u> </u>	Vertic (F18) (	-		
	Sulfide (A4) Layers (A5)			Loamy Gle Depleted N	-				t Floodplain S us Bright Loa			P, 5,1)
	Bodies (A6) <b>(LRR P</b> ,	T 11)		Redox Dar				(MLRA 1		iny Sons	s (F20)	
	ky Mineral (A7) <b>(LR</b>			Depleted D				•	ent Material ( <sup>-</sup>	Γ <b>F</b> 2)		
	sence (A8) (LRR U)			Redox Dep		` '		<u> </u>	llow Dark Su		F12) <b>(LR</b>	R T,U)
	k (A9) (LLR P, T)			Marl (F10)		,			oplain in Rem		, ,	, ,
Depleted	Below Dark Surface	e (A11)		Depleted C	Ochric (F	11) <b>(MLRA 1</b>	51)					
Thick Dar	k Surface (A12)			Iron-Mang	anese M	asses (F12)	(LRR O, P	, <b>T)</b> 3Indica	tors of hydro	phytic ve	egetation	and
Coast Pra	airie Redox (A16) (N	/ILRA 150A)		Umbric Su	rface (F1	3) <b>(LRR P, T</b>	<sup>-</sup> , U)	wetl	and hydrolog	y must b	e preser	nt,
Sandy Mu	ucky Mineral (S1) <b>(L</b>	.LR O, S)		Delta Ochr	ric (F17)	(MLRA 151)		Ur	nless disturbe	d or pro	blematic	
Sandy Gle	eyed Matrix (S4)			Reduced \	/ertic (F1	8) <b>(MLRA 1</b> 5	50A, 150B)					
Sandy Re	edox (S5)				•	n Soils (F19		•				
	Matrix (S6)			Anomalous	s Bright I	oamy Soils	(F20) <b>(ML</b> I	RA 149A, 153C, 153	D)			
Dark Surf	ace (S7) <b>(LRR P, S,</b>	T, U)										
Restrictive Lay	er (if observed):											
Type:							l			-		_
Depth (inche	es):						Hy	dric Soil Present?	Yes	~	No	
Remarks:							'					

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/8/17	
Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET F-SP	
Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa	
Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope (%): 0-1	
Subregion (LRR or MLRA):         MLRA 149         Lat:         39.396073         Long:         -76.431189         Datum:         NAD	83
Soil Map Unit Name: CaB - Chillum silt loam, 0 to 5 percent slopes NWI classification: PEM	
Are climatic/hydrologic conditions on the site typical for this time of year? Yes 🔽 No 🔲 (If no, explain in Remarks.)	
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes V	
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, e	tc.
Hydrophytic Vegetation Present? Yes V No	-
Hydric Soil Present? Yes ▼ No □ Is the Sampled Area Yes ▼ No □	
Wetland Hydrology Present? Yes Vo No Within a Wetland?	
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:  Secondary Indicators (minimum of two requirements of analism and the standard of the standard of two requirements of analism and two requirements of analism and the standard of two requirements of analism and the standard of two requirements of analism and two requirements of analism and the standard of two requirements of two requiremen	ired)
Primary Indicators (minimum of one is required; check all that apply)  Surface Woter (A1)  Surface Woter (A1)  Surface Woter (A1)	, (D0)
✓       Surface Water (A1)       ✓       Aquatic Fauna (B13)       ✓       Sparsely Vegetated Concave Surface         ✓       High Water Table (A2)       ✓       Mari Deposits (B15) (LLR U)       ✓       Drainage Patterns (B10)	) (B8)
Saturation (A3)    Hydrogen Sulfide Odor (C1)    Moss Trim Lines (B16)	
Water Marks (B1)  Oxidized Rhizospheres on Living Roots (C3)  Dry-Season Water Table (C2)	
Sediment Deposits (B2)  Presence of Reduced Iron (C4)  Crayfish Burrows (C8)	
□ Drift Deposits (B3) □ Recent Iron Reduction in Tilled Soils (C6) □ Saturation Visible on Aerial Imagery (	(C9)
□ Algal Mat or Crust (B4) □ Thin Muck Surface (C7) □ Geomorphic Position (D2)	,
☐ Iron Deposits (B5) ☐ Other (Explain in Remarks) ☐ Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)	
□ Water-Stained Leaves (B9) □ Sphagnum moss (D8)(LRR T, U)	
Field Observations:	
Surface Water Present? Yes 🔽 No 🔲 Depth (inches): 1	
Water Table Present? Yes Ver No Depth (inches): 0	
Saturation Present? Yes No Depth (inches): 8 Wetland Hydrology Present? Yes No (includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	
Likely receives hydrology from East Joppa Road. Isolated.	

	Absolute	Dominant	Indicator	Dominance Test Worksheet:
<u>e Stratum</u> ( Plot size: 30' )	% Cover	Species?	Status	Dominance rest worksneet.
				Number of Dominant Species That Are OBL, FACW, or FAC:  4
				Total Number of Dominant Species Across All Strata: 5 (
				Percent of Dominant Species That Are OBL, FACW, or FAC:  80%
				mat Ale OBE, I AOW, OI I AO.
				Dunyalan as Inday Warlahast
				Prevalence Index Worksheet:
F00/ - \$4-4-1		Total Cover		
50% of total cover:		% of total cover:		OBL species x1=
ling/Shrub Stratum (Plot size: 30'			E 4 0) 4 /	FACW species x2=
Fraxinus pennsylvanica		<u>Yes</u>	FACW	FAC species x3=
Liquidambar styraciflua		Yes	FAC	FACU species x4=
				UPL species x5=
				Column Totals: (A)
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Veget
		Total Cover		X 2 - Dominance Test is > 50%
50% of total cover:		% of total cover:	6	3 - Prevalence Index is $\leq 3.0^{1}$
O Stratum (Plot size:30'	10 20%	or total cover.		Problematic Hydrophytic Vegetation <sup>1</sup>
	70	Yes	OBL	(Exp
Juncus effusus	10	No	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrolog
		Yes	FAC	must be present, unless disturbed or problema
Lonicera japonica	30	Yes	FACU	Definitions of Four Vegetation Strata:
		No	OBL	
				Tree – Woody plants, excluding vines, 3 in. (7 cm) or more in diameter at breast height (DBH
				regardless of height.
	-			Sapling/Shrub – Woody plants, excluding vin less than 3 in. DBH and greater than 3.28 ft (1
				tall.
				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less thar
		Total Cover		3.28 ft tall.
50% of total cover:		of total cover:	30	Woody vine – All woody vines greater than 3
	)	or total cover.		in height.
				Hydrophytic
		= Total Cover		
	=	Total Cover  of total cover:		Vegetation Present? Yes V No

Sampling Point: WET F-SP

Profi	le Descrip	tion: (Describe t	o the depth	needed	to docume	nt the inc	licator or c	onfirm the a	bsenc	e of indicato	rs.)			
	Depth	Matrix			Re	dox Featu	ıres							
_(ir	nches)_	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	T	exture		Remarl	(S	
	0-5	10YR 4/2	90_	10Y	R 5/8	10	C	M		Clay				
5	5-12+	10YR 5/2	80	10Y	R 5/8	_20_	C	M	Sar	ndy Clay				
											-			
1 Typ	e: C=Conc	entration, D=Deple	etion, RM=Re	educed N		Masked S	and Grains.			cation: PL=Po				
Hydr	ic Soil Ind	icators: (Applicat	ole to all LRI	Rs, unle	ss otherwis	se noted.)	)		Indi	cators for Pro	oblematic	Hydric	Soils <sup>3</sup> :	
	Histosol (	<b>A1</b> )			Polyvalue	Below Su	rface (S8) <b>(</b>	LRR S, T,U)		1 cm Muck	(A9) <b>(LRR</b>	0)		
	Histic Epi	pedon (A2)			Thin Dark	Surface (	S9) <b>(LRR S</b> ,	T, U)		2 cm Muck	(A10) <b>(LR</b> R	2 S)		
	Black Hist	tic (A3)			Loamy Mu	ıcky Mineı	al (F1) <b>(LRI</b>	R O)		Reduced Ve	ertic (F18) <b>(</b>	outside	MLRA 1	50A,B)
	Hydrogen	Sulfide (A4)			Loamy Gle	eyed Matr	ix (F2)			Piedmont F	loodplain S	oils (F1	9) <b>(LRR</b>	P, S,T)
	Stratified	Layers (A5)		<b>V</b>	Depleted N	Matrix (F3	)			Anomalous	Bright Loa	my Soils	(F20)	
	Organic B	odies (A6) (LRR P	, T, U)		Redox Da	rk Surface	e (F6)			(MLRA 15	3B)			
	5 cm Muc	ky Mineral (A7) <b>(Li</b>	RR P, T, U)		Depleted [	Dark Surfa	ace (F7)			Red Parent	Material (1	F2)		
	Muck Pre	sence (A8) (LRR U	)		Redox De	pressions	(F8)			Very Shallo	w Dark Sui	face (TI	-12) <b>(LR</b>	R T,U)
	1 cm Muc	k (A9) <b>(LLR P, T)</b>			Marl (F10)	(LRR U)				Other (Expl	ain in Rem	arks)		
	Depleted	Below Dark Surfac	e (A11)		Depleted (	Ochric (F1	1) <b>(MLRA 1</b>	51)						
	Thick Dar	k Surface (A12)			Iron-Mang	anese Ma	sses (F12)	(LRR O, P, T	)	<sup>3</sup> Indicator	s of hydrop	ohytic ve	getation	and
	Coast Pra	iirie Redox (A16) <b>(I</b>	MLRA 150A)		Umbric Su	ırface (F1	3) <b>(LRR P, T</b>	<sup>-</sup> , U)		wetland	d hydrology	/ must b	e prese	nt,
	Sandy Mu	ıcky Mineral (S1) (I	LLR O, S)		Delta Ochi	ric (F17) <b>(</b>	MLRA 151)			Unle	ss disturbe	d or pro	blematio	:
	Sandy Gle	eyed Matrix (S4)		_	Reduced \	/ertic (F18	B) (MLRA 15	50A, 150B)						
	Sandy Re	dox (S5)			Piedmont	Floodplair	n Soils (F19	) (MLRA 149	A)					
		Matrix (S6) ace (S7) <b>(LRR P, S</b>	s, T, U)	III	Anomalou	s Bright L	oamy Soils	(F20) <b>(MLRA</b>	149A,	153C, 153D)				
Rest	rictive Lay	er (if observed):												
D	epth (inche	es):			_			Hydr	ic Soil	Present?	Yes	~	No	
Rem	arks:													

Project/Site: I-95 ETL Northbound Extension	City/County: Baltimore	Sampling Date: 7/27/17
Applicant/Owner: Maryland Transportation Authority	_ , ,	WET D, BRBR- MD Sampling Point: WET22, F-UPL
Investigator(s): E. Markel, M. McCormick	Section, Township, Range: Jopp	
Landform (hillslope, terrace, etc.): Terrace	<u> </u>	
	_	None Slope (%): 1
Subregion (LRR or MLRA): MLRA 149	Lat: <u>39.393887</u> Long:	
Soil Map Unit Name: MpB – Mount Lucas silt loam, 3 to 8		NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this t		(If no, explain in Remarks.)
Are Vegetation Soil or Hydrology	significantly disturbed? Are "Normal Cir	rcumstances" present? Yes 🔽 No 🔲
Are Vegetation Soil or Hydrology	naturally problematic? (If needed, expla	ain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sh	owing sampling point locations,	, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No 🔲	
Hydric Soil Present? Yes	No Is the Sampled Area	Yes □ No ▼
	No Within a Wetland?	
	P-1	
Remarks:		
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that	at apply)	Surface Soil Cracks (B6)
Surface Water (A1)	atic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
☐ High Water Table (A2) ☐ Mar	Deposits (B15) <b>(LLR U)</b>	☐ Drainage Patterns (B10)
Saturation (A3)	rogen Sulfide Odor (C1)	Moss Trim Lines (B16)
	lized Rhizospheres on Living Roots (C3)	□ Dry-Season Water Table (C2)
Sediment Deposits (B2)	sence of Reduced Iron (C4)	Crayfish Burrows (C8)
□ Drift Deposits (B3) □ Rec	ent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Muck Surface (C7)	Geomorphic Position (D2)
☐ Iron Deposits (B5) ☐ Oth	er (Explain in Remarks)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral Test (D5)
Water-Stained Leaves (B9)		Sphagnum moss (D8)(LRR T, U)
Field Observations:		
Surface Water Present? Yes No V	pth (inches):	
Water Table Present? Yes No V De	pth (inches):	
Saturation Present? Yes No V De	pth (inches): Wetland Hyd	rology Present? Yes No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, ae	riai pnotos, previous inspections), if availab	ле:
Remarks:		
Remarks.		

<u>e Stratum</u> ( Plot size: 30' )	Absolute % Cover		Indicator Status	Dominance Test Worksheet:	
Liriodendron tulipifera	40	Yes	FACU	Number of Dominant Species	(/
Acer rubrum	15	No	FAC	That Are OBL, FACW, or FAC:	- (/
Liquidambar styraciflua	30	Yes	FAC	Total Number of Dominant	(1
				Species Across All Strata:	- ('
		_		Percent of Dominant Species 57%	(,
	_			That Are OBL, FACW, or FAC:	_ (
				Prevalence Index Worksheet:	
	85	= Total Cover		Total % Cover of: Multiply b	
50% of total cover: _	42.5	20% of total cover:	17	OBL species x1=	
ing/Shrub Stratum (Plot size: 30'	)			FACW species x2=	
Ulmus rubra		No	FAC	FAC species x3=	
Lindera benzoin		Yes	<u>FACW</u>	FACU species x4=	
Rosa multiflora		No	_FACU_	UPL species x5=	
Liquidambar styraciflua	5	No	FAC	Column Totals: (A)	
				Prevalence Index = B/A =	_
				Hydrophytic Vegetation Indicators:	
				1 - Rapid Test for Hydrophytic Veg	jeta
	50	= Total Cover		_X 2 - Dominance Test is > 50%	
50% of total cover:	25	20% of total cover:	10	3 - Prevalence Index is ≤ 3.0 <sup>1</sup>	
b Stratum (Plot size: 30'	)			Problematic Hydrophytic Vegetation	n <sup>1</sup>
Parthenocissus quinquefolia					
T ditironooloodo quiriquorolla	30	Yes	FACU	(E	Exp
Lindera benzoin		Yes No	FACU FACW	<sup>1</sup> Indicators of hydric soil and wetland hydro	log
Lindera benzoin				`	log
Lindera benzoin	10	No	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydro	log
Lindera benzoin Toxicodendron radicans	10 30	No Yes	FACW FAC	<sup>1</sup> Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in.	log ma
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No	FACW FAC FAC	<sup>1</sup> Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D	log ma
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No No	FACW FAC FAC	<sup>1</sup> Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D regardless of height.	log ema
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No No	FACW FAC FAC	<ul> <li><sup>1</sup>Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble</li> <li>Definitions of Four Vegetation Strata:</li> <li>Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D regardless of height.</li> <li>Sapling/Shrub – Woody plants, excluding and control of the control of the</li></ul>	log ma . (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No No	FACW FAC FAC	<sup>1</sup> Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D regardless of height.	log ema (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No No	FACW FAC FAC	Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D regardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.	log ma . (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No No	FACW FAC FAC	Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D regardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants,	logema (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No No	FACW FAC FAC	Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D regardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.	logema (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus	10 30 5 5	No Yes No No Total Cover	FACW FAC FAC FACU	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probleto perintions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (Diregardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	logema (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus  50% of total cover:	10 30 5 5	No Yes No No	FACW FAC FAC	Indicators of hydric soil and wetland hydro must be present, unless disturbed or proble  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (D regardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less the	logema (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus  50% of total cover: ody Vine Stratum (Plot size: 30'	10 30 5 5 5	No Yes No No Total Cover:	FACW FAC FACU FACU  16	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probleto in the present problem.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (Diregardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less the 3.28 ft tall.  Woody vine – All woody vines greater than	logema (7 BH
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus  50% of total cover:  ody Vine Stratum (Plot size: 30' Toxicodendron radicans	10 30 5 5 5	No Yes No No No  Total Cover 20% of total cover:	FACW FAC FAC FACU  16	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probleto in the present problem.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (Diregardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less the 3.28 ft tall.  Woody vine – All woody vines greater than	logema (7 BH vinet (1
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus  50% of total cover:  and Vine Stratum Toxicodendron radicans Celastrus orbiculatus	80 40 2 10 30 5 5	No Yes No No Total Cover:	FACW FAC FACU FACU  16	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probleto in the present problem.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (Diregardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less the 3.28 ft tall.  Woody vine – All woody vines greater than	ying (1) (1) (1) (1) (1)
Lindera benzoin  Toxicodendron radicans  Geum canadense  Celastrus orbiculatus  50% of total cover:  ody Vine Stratum (Plot size: 30'  Toxicodendron radicans  Celastrus orbiculatus	80 40 2 10 30 5 5	No Yes No No No  Total Cover 20% of total cover:	FACW FAC FAC FACU  16	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probleto in the present problem.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (Diregardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less the 3.28 ft tall.  Woody vine – All woody vines greater than	(7 BH vinet (1
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus  50% of total cover: Dody Vine Stratum (Plot size: 30' Toxicodendron radicans Celastrus orbiculatus	80 40 2 5 5 5	No Yes No No No  Total Cover 20% of total cover:	FACW FAC FAC FACU  16	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probleto in the present problem.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. cm) or more in diameter at breast height (Diregardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less the 3.28 ft tall.  Woody vine – All woody vines greater than	logema (7 BH
Lindera benzoin  Toxicodendron radicans  Geum canadense  Celastrus orbiculatus  50% of total cover:  ody Vine Stratum (Plot size: 30'  Toxicodendron radicans  Celastrus orbiculatus	80 40 2 10 5 5	No Yes No No No  Total Cover  Yes Yes Yes Yes	FACW FAC FAC FACU  16	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probletomust be present, unless disturbed or probletomust.  Tree – Woody plants, excluding vines and pregardless of height.  Sapling/Shrub – Woody plants, excluding less than 3 in. DBH and greater than 3.28 ft tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than in height.	logema (7 BH vinet (1
Lindera benzoin Toxicodendron radicans Geum canadense Celastrus orbiculatus  50% of total cover: Dody Vine Stratum (Plot size: 30' Toxicodendron radicans Celastrus orbiculatus	80 40 2 10 5 5 5	No Yes No No No  Total Cover 20% of total cover:	FACW FAC FAC FACU  16 FAC FACU	Indicators of hydric soil and wetland hydro must be present, unless disturbed or probleto in the present of th	logema (7 BH

Sampling Point: WET D, BRBR-WET22, F-UPL

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)														
Depth	Matrix	Redox Features												
Color (inches) (moist) %		Color (moist)		%	% Type <sup>1</sup>		Texture		Remarks					
0-2	10YR 3/3	95	10YR 6/8		5	C		Loam						
2-8+	10YR 5/8	90	10YR 7/1		10		M	Loam						
									_					
									_					
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion, RM=Re	educed M	latrix, MS=N	/lasked S	and Grains.			_=Pore Lining,					
Hydric Soil I	ndicators: (Applicat	(I DD C	Indicators for Problematic Hydric Soils <sup>3</sup> :											
Histoso	ol (A1)			T,U)	Delow 3	urface (S8)	(LKK 3,	-	1 cm Muck (A9) (LRR O)					
	pipedon (A2)					(S9) (LRR S		2 cm Muck (A10) (LRR S)						
	listic (A3)			-	-	eral (F1) <b>(LR</b>	R O)	Reduced Vertic (F18) (outside MLRA 150A,B) Piedmont Floodplain Soils (F19) (LRR P, S,T)						
	en Sulfide (A4) ed Layers (A5)			Loamy Gle Depleted N	-							P, 5,1)		
	c Bodies (A6) <b>(LRR P</b>	. T. U)		Redox Da		•		Anomalous Bright Loamy Soils (F20) (MLRA 153B)						
	lucky Mineral (A7) <b>(L</b> l			Depleted [		` '		Red Parent Material (TF2)						
	Presence (A8) (LRR U	J)		Redox Depressions (F8)								R T,U)		
1 cm M	luck (A9) (LLR P, T)			Marl (F10) (LRR U) Other (Explain in Remarks)										
	ed Below Dark Surfac	ce (A11)				11) <b>(MLRA</b> 1								
l'''	Park Surface (A12)			_		asses (F12)			cators of hydro	-	_			
-	Prairie Redox (A16) (					13) (LRR P, 1			tland hydrolog	-				
	Mucky Mineral (S1) <b>(</b> Gleyed Matrix (S4)	LLR (J, S)			` ,	(MLRA 151) 18) (MLRA 1		l	Jnless disturbe	d or pro	blematic	:		
	Redox (S5)				•	in Soils (F19	•	9A)						
	d Matrix (S6)					•		A 149A, 153C, 15	3D)					
	urface (S7) <b>(LRR P, S</b>	S, T, U)			J	,	,,,	, ,	,					
	ayer (if observed):	· · ·												
Type:	ayer (ii observeu).													
Depth (inches):							Hyd	Iric Soil Present? Yes No				~		
Damanla														
Remarks:														

Project/Site: I-95 ETL Northbound Extension	City/County: Baltimore Sampling Date: 8/8/17								
Applicant/Owner: Maryland Transportation Authority	State: MD Sampling Point: WET G-SP								
Investigator(s): E. Markel, M. McCormick	Section, Township, Range: Joppa								
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none): Concave Slope (%): 0-1								
Subregion (LRR or MLRA): MLRA 148	Lat: _39.398071								
Soil Map Unit Name: CaC - Chillum silt loam, 0 to 5 percent	slopes NWI classification: PFO								
Are climatic/hydrologic conditions on the site typical for this tim	e of year? Yes 🔽 No 🔲 (If no, explain in Remarks.)								
Are Vegetation Soil or Hydrology s	ignificantly disturbed? Are "Normal Circumstances" present? Yes 🔲 No 🔽								
Are Vegetation Soil or Hydrology r	aturally 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 V									
Hydric Soil Present? Yes V	Is the Sampled Area Yes 🔽 No								
Wetland Hydrology Present? Yes V	Within a Wetland?								
Remarks:	I								
Seep wetland, flows into WUS L, Very disturbed by ATV track:									
Geep welland, nows into WOO L, Very distribed by ATV track.	•								
HYDROLOGY									
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)								
Primary Indicators (minimum of one is required; check all that									
	ic Fauna (B13)  Sparsely Vegetated Concave Surface (B8)  President (B45) (LLB LL)  President (B45) (LLB LL)								
	Deposits (B15) (LLR U)  Drainage Patterns (B10)  Drainage Patterns (B16)								
	gen Sulfide Odor (C1) Moss Trim Lines (B16)  ded Rhizospheres on Living Roots (C3) Dry-Season Water Table (C2)								
	nce of Reduced Iron (C4)  Crayfish Burrows (C8)								
	nt Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)								
Algal Mat or Crust (B4)	Muck Surface (C7) Geomorphic Position (D2)								
☐ Iron Deposits (B5) ☐ Other	(Explain in Remarks)								
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)								
Water-Stained Leaves (B9)     Sphagnum moss (D8)(LRR T, U)									
Field Observations:									
Surface Water Present? Yes 🔽 No 🔲 Dept	h (inches):1-4								
Water Table Present? Yes 🔽 No 🔲 Dept	h (inches):0								
(includes capillary fringe)	h (inches):0-12 Wetland Hydrology Present? Yes V No								
Describe Recorded Data (stream gauge, monitoring well, aeria	I photos, previous inspections), if available:								
Remarks:									
Normality.									

GETATION (Four Strata) – Use scientific names of plants.	Sampling Point:	WET G-SP
VEGETATION (Four Strata) - Ose scientific frames of plants.		

Tree Stratum ( Plot size: 30' )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:				
1. Acer rubrum	40	Yes	FAC	Number of Dominant Species 5 (A)				
2. Liquidambar styraciflua	00	Yes	FAC	That Are OBL, FACW, or FAC:  (A)				
3.				Total Number of Dominant Species Across All Strata:  5 (B)				
4.								
5.				Percent of Dominant Species That Are OBL, FACW, or FAC:  100% (A/B)				
6.								
7.				Prevalence Index Worksheet:				
8.		= Total Cover						
F00/ of total covers	60	_	40					
50% of total cover:		20% of total cover:	12	OBL species x1=				
Sapling/Shrub Stratum (Plot size: 30'		Vaa	FAC	FACW species x2=				
1. Acer rubrum		_ Yes	FAC	FAC species x3=				
2. <u>Liquidambar styraciflua</u>			<u>FAC</u>	FACU species x4=				
3				UPL species x5=				
4.				Column Totals: (A) (B)				
5				Prevalence Index = B/A =				
6				Hydrophytic Vegetation Indicators:				
7.								
8.	7	= Total Cover		1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50%				
FOO/ of total accord		_ = Total Cover 20% of total cover:	1.1					
50% of total cover: <b>Herb Stratum</b> (Plot size: 30'		20% of total cover.	1.4	3 - Prevalence Index is ≤ 3.0 '  Problematic Hydrophytic Vegetation <sup>1</sup>				
1 Lograin virgining	70	Voo	FACW	(Explain)				
2 Cairnus atravirans		<u>Yes</u> No	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology				
Scirpus atrovirens     Toxicodendron radicans	- <u>2</u> 5	<del>-</del>	FAC	must be present, unless disturbed or problematic.				
Rosa multiflora	_ <u> </u>	No		Definitions of Four Vegetation Strate				
Rosa multinora     Parthenocissus quinquefolia	- <u> </u>	No	FACU FACU	Definitions of Four Vegetation Strata:				
Microstegium vimineum	- <del> </del>	<u>No</u> No	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),				
				regardless of height.				
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m)				
10				tall.				
10. 11.				Hort All hards account (non-una du) relants				
12.				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than				
12.	92	= Total Cover		3.28 ft tall.				
50% of total cover:		2% of total cover:	18.4	Woody vine – All woody vines greater than 3.28 ft				
Woody Vine Stratum (Plot size: 30'	)	570 ST (Stal SSVS).		in height.				
Toxicodendron radicans	/ 5	Yes	FAC					
2.								
3.								
4.								
5.								
	- — <u> </u>	= Total Cover		Hydrophytic				
50% of total cover:	2.5	20% of total cover:	1	Vegetation Present? Yes ▼ No ▼				
_								
Remarks: (If observed, list morphological adaptati	ons below).							
,	,							

SOIL Sampling Point: WET G-SP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)															
Depth	Matrix			Redox Features											
Color _(inches) (moist) %			Color (moist) %			Type <sup>1</sup>	Loc <sup>2</sup>	T	exture		Remarks				
0-6	10YR 5/2	90	10Y	R 4/6	10	С	M	Sar	idy Clay						
6-12+	10YR 5/4			10YR 5/8		C	M	Sar	idy Clay						
— — — — — — — — — — — — — — — — — — —															
1 <sub>Type:</sub> C=Ce	noontration D-Donl		21.00	ection: DI =Do	ro Lining	NA-NActri									
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)								<sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils <sup>3</sup> :							
							I PP S TII\	1 cm Muck (A9) <b>(LRR 0)</b>							
	pipedon (A2)								2 cm Muck (A10) (LRR S)						
	istic (A3)								Reduced Vertic (F18) (outside MLRA 150A,B)						
	en Sulfide (A4)		~	Loamy Gle	•	• •		Piedmont Floodplain Soils (F19) (LRR P, S,T)							
	d Layers (A5)			Depleted N	•			Anomalous Bright Loamy Soils (F20) (MLRA 153B)							
Organic Bodies (A6) (LRR P, T, U)				Redox Da	rk Surface	e (F6)			(WERA 15	00)					
5 cm M	5 cm Mucky Mineral (A7) (LRR P, T, U)				Depleted Dark Surface (F7)					Material (TF2)					
Muck Presence (A8) (LRR U)				Redox Depressions (F8)					Very Shallow Dark Surface (TF12) (LRR T,U)						
1 cm M	uck (A9) (LLR P, T)		Marl (F10) <b>(LRR U)</b>					Other (Explain in Remarks)							
Depleted Below Dark Surface (A11)				Depleted Ochric (F11) (MLRA 151)											
Thick Dark Surface (A12)				Iron-Manganese Masses (F12) (LRR O, P, T)					<sup>3</sup> Indicators of hydrophytic vegetation and						
Coast F		Umbric Su	rface (F1	3) <b>(LRR P,</b> 1	Γ, U)		wetland hydrology must be present,								
Sandy I		Delta Ochric (F17) (MLRA 151) Unless disturbed or problemat							blematic	:					
Sandy 0						Reduced Vertic (F18) (MLRA 150A, 150B)									
Sandy F						Piedmont Floodplain Soils (F19) (MLRA 149A)									
	d Matrix (S6) Irface (S7) (LRR P, \$	S, T, U)		Anomalou	s Bright L	oamy Soils.	(F20) <b>(MLRA</b>	149A,	153C, 153D)						
Restrictive La	ayer (if observed):														
	Depth (inches):						dric Soil Present? Yes V No								
Remarks:															

Project/Site: I-95 ETL Northbound Extension City/County: Baltimore Sampling Date: 8/8/17										
Applicant/Owner: Maryland Transportation Authority State: MD Sampling Point: WET H-SP										
Investigator(s): E. Markel, M. McCormick Section, Township, Range: Joppa										
Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope (%): 1										
Subregion (LRR or MLRA):         MLRA 148         Lat:         39.3999         Long:         -76.4272         Datum:         NAD 83										
Soil Map Unit Name: BeB - Beltsville silt loam, 2 to 5 percent slopes NWI classification: PEM										
Are climatic/hydrologic conditions on the site typical for this time of year? Yes 🔽 No 🔲 (If no, explain in Remarks.)										
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No	J									
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 ☐										
Hydric Soil Present? Yes V No I Is the Sampled Area Yes V No I										
Wetland Hydrology Present? Yes Ver No Within a Wetland?										
Remarks:	$\dashv$									
Most of wetland is located at toe of road embankment, has been recently mowed.										
most of welland to located at the of four emparisment, has been recently moved.										
HYDROLOGY										
Wetland Hydrology Indicators:  Secondary Indicators (minimum of two required	)									
Primary Indicators (minimum of one is required; check all that apply)  Surface Soil Cracks (B6)										
Surface Water (A1)  Aquatic Fauna (B13)  Sparsely Vegetated Concave Surface (B	3)									
High Water Table (A2)  Mari Deposits (B15) (LLR U)  Drainage Patterns (B10)										
Saturation (A3)  Hydrogen Sulfide Odor (C1)  Moss Trim Lines (B16)  Cuidinal Phinaghana and Lining Reats (C3)										
Water Marks (B1)  Oxidized Rhizospheres on Living Roots (C3)  Dry-Season Water Table (C2)  Sediment Deposits (R2)  Oroyfish Burrows (C2)										
Sediment Deposits (B2)  Presence of Reduced Iron (C4)  Crayfish Burrows (C8)  Presence of Reduced Iron (C4)  Saturation Visible on Aerial Imagery (C9)										
Algal Mat or Crust (B4)  Thin Muck Surface (C7)  Geomorphic Position (D2)										
Iron Deposits (B5)  Other (Explain in Remarks)  Shallow Aquitard (D3)										
Inundation Visible on Aerial Imagery (B7)										
✓ Water-Stained Leaves (B9)										
Field Observations:										
Surface Water Present? Yes V No Depth (inches):1										
Water Table Present? Yes No Depth (inches): 0										
Saturation Present? Yes No Depth (inches): 10 Wetland Hydrology Present? Yes No Cincludes capillary fringe)	1									
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:										
Remarks:										
Notifians.										

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

<u>Tree Stratum</u> ( Plot size:	Absolute <u>% Cover</u>	Dominant Species?	Indicator Status	Dominance Test Worksheet:		
1. 2.				Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
3.				Total Number of Dominant	2	(B)
4				Species Across All Strata:		
5				Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)
7.				-		
8.				Prevalence Index Worksheet:		
		= Total Cover		Total % Cover of:	Multiply by	<i>/</i> :
50% of total cover:		% of total cover:		OBL species x1=		
Sapling/Shrub Stratum (Plot size: 30'						
1.						
2.	· <u></u>					
3.						
4.				Column Totals: (A)		
5				Prevalence Index = B/A =		
6.				Hydrophytic Vegetation Indies	toro	
7				Hydrophytic Vegetation Indica		
8.				1 - Rapid Test for Hydrop		etation
		= Total Cover		X 2 - Dominance Test is >		
50% of total cover:		% of total cover:		3 - Prevalence Index is <	_	1
Herb Stratum (Plot size: 30'		.,	0.51	Problematic Hydrophytic	-	n ' xplain)
1. Scirpus cyperinus		Yes	OBL_	The disease of booking will and so all	`	. ,
2. Juncus effusus	· · · · · · · · · · · · · · · · · · ·	Yes	OBL_	<sup>1</sup> Indicators of hydric soil and wetla must be present, unless disturbed		
3. <u>Liquidambar styraciflua</u>		No	FAC	•		
4. Lonicera japonica		No	FACU_ NA	Definitions of Four Vegetation S	Strata:	
5. Rhubus sp.	15	No		Tree – Woody plants, excluding v		
6. Platanus occidentalis	· · · · · · · · · · · · · · · · · · ·	No	FACW_	cm) or more in diameter at breast regardless of height.	neight (DE	эп <i>)</i> ,
7. Acer rubrum	5	No	FAC			
8				Sapling/Shrub – Woody plants, e		
9				less than 3 in. DBH and greater thall.	1a11 3.20 IL	(1111)
10.						
11.				<b>Herb</b> – All herbaceous (non-wood regardless of size, and woody pla		on
12				3.28 ft tall.	1112 1622 111	all
E00/		= Total Cover	40.4			
50% of total cover:		6 of total cover:	18.4	<b>Woody vine</b> – All woody vines grain height.	eater than	3.28 ft
Woody Vine Stratum (Plot size: 30'	)					
1.						
2.						
3.						
4.						
5		T-4-1-0		Hydrophytic		
F00/ - f1-1-1		= Total Cover		Vegetation	NI.	
50% of total cover:	20	% of total cover:		Present? Yes	No	
Demarko, (If shoomed list marris legical adverse)	ano holeus					
Remarks: (If observed, list morphological adaptation	ons below).					

Sampling Point: WET H-SP

Sampling Point: WET H-SP

SOIL

Profi	le Descrip	otion: (Describe	to the depth	needed	to docume	ent the inc	dicator or co	onfirm the a	bsenc	e of indicato	rs.)					
	Depth	Matrix			Re	dox Feat	ures									
_(ir	nches)	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	T	exture		Remark	(S			
	0-6	2.5Y 5/2	90	10Y	R 5/6	10	C	<u> </u>	Sar	idy Clay						
									Con	dy Clay						
_6	6-12+	2.5Y 6/3	60	10Y	R 5/6	_40_	C	M		idy Clay ₋oam						
1Type	e: C=Cond	centration, D=Depl	etion, RM=R	educed N		Masked S	and Grains.		<sup>2</sup> Loc	ation: PL=Po	ore Lining,	M=Matri	X.			
Hydr	ic Soil Ind	licators: (Applica	ble to all LR		ss otherwis	se noted.	)		Indicators for Problematic Hydric Soils <sup>3</sup> :							
	Histosol (	(A1)			Polyvalue	Below Su	ırface (S8) <b>(I</b>	RR S, T,U)		1 cm Muck	(A9) (LRR	0)				
	Histic Epi	ipedon (A2)			Thin Dark	Surface (	S9) (LRR S,	T, U)		2 cm Muck	(A10) <b>(LRR</b>	RS)				
	Black His	stic (A3)			Loamy Mu	ıcky Mine	ral (F1) <b>(LRF</b>	? O)		Reduced V	ertic (F18) <b>(</b>	outside	MLRA 1	50A,B)		
	Hydroger	n Sulfide (A4)			Loamy Gle	eyed Matr	ix (F2)			Piedmont F	loodplain S	Soils (F1	9) <b>(LRR</b>	P, S,T)		
	Stratified	Layers (A5)			Depleted I	Matrix (F3	3)			Anomalous	Bright Loa	my Soils	(F20)			
	Organic E	Bodies (A6) (LRR F	P, T, U)		Redox Da	rk Surface	e (F6)		(MLRA 153B)							
	5 cm Mud	cky Mineral (A7) <b>(L</b>	.RR P, T, U)	Depleted Dark Surface (F7)					Red Parent	: Material (1	ΓF2)					
	Muck Pre	esence (A8) (LRR (	J)		Redox Depressions (F8)					Very Shallo	w Dark Su	rface (TF	-12) <b>(LR</b>	R T,U)		
	1 cm Mud	ck (A9) (LLR P, T)			Marl (F10)	(LRR U)				Other (Expl	ain in Rem	arks)				
	Depleted	Below Dark Surfa	ce (A11)		Depleted (	Ochric (F	11) <b>(MLRA 1</b>	51)								
	Thick Da	rk Surface (A12)			Iron-Mang	anese Ma	asses (F12) (	(LRR O, P, T)	T) <sup>3</sup> Indicators of hydrophytic vegetation and					and		
	Coast Pra	airie Redox (A16) (	(MLRA 150A)		Umbric Su	ırface (F1	3) <b>(LRR P, T</b>	, U)	wetland hydrology must be present,					nt,		
	Sandy M	ucky Mineral (S1)	(LLR O, S)		Delta Och	ric (F17) <b>(</b>	MLRA 151)			Unle	ss disturbe	d or prol	blematic			
	Sandy Gl	leyed Matrix (S4)		-	Reduced \	Vertic (F1	8) <b>(MLRA 15</b>	0A, 150B)								
	Sandy Re	edox (S5)			Piedmont	Floodplai	n Soils (F19)	(MLRA 149	<b>A</b> )							
		Matrix (S6) face (S7) <b>(LRR P, </b>	S. T. U)	III.	Anomalou	s Bright L	oamy Soils (	F20) <b>(MLRA</b>	149A,	153C, 153D)						
		ver (if observed):	-, , -,													
	ype:	, o. ( oo rou).														
D	epth (inche	es):						Hydri	ic Soil	Present?	Yes	~	No			
Rem	arks:															

Project/Site: I-95 ETL Northbound Extension City/Con	unty: Baltimore Sampling Date: 8/8/17										
Applicant/Owner: Maryland Transportation Authority	State: MD Sampling Point: WET G, H-UPL										
Investigator(s): _E. Markel, M. McCormick Section	, Township, Range: <u>Joppa</u>										
Landform (hillslope, terrace, etc.): Hillslope Local re	elief (concave, convex, none): Convex Slope (%): 0-2										
Subregion (LRR or MLRA): MLRA 148 Lat:	39.398071 Long:76.428905 Datum: _NAD 83										
Soil Map Unit Name: CaB - Chillum silt loam 0 to 5 percent slopes	NWI classification: Upland										
Are climatic/hydrologic conditions on the site typical for this time of year	? Yes ☑ No ☐ (If no, explain in Remarks.)										
Are Vegetation Soil or Hydrology significantl	ly disturbed? Are "Normal Circumstances" present? Yes 🔽 No 🔲										
Are Vegetation Soil or Hydrology naturally p	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 V	1										
Hydric Soil Present? Yes No											
Wetland Hydrology Present? Yes □ No ▼	Within a Watland?										
	<u>'                                     </u>										
Remarks:											
HYDROLOGY											
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)										
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)  (P12)  Surface Soil Cracks (B6)										
Surface Water (A1)    Aquatic Fauna   Aquatic											
Saturation (A3)  Hydrogen Sulfic											
	spheres on Living Roots (C3) Dry-Season Water Table (C2)										
	educed Iron (C4) Crayfish Burrows (C8)										
	duction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)										
Algal Mat or Crust (B4) Thin Muck Surf.											
☐ Iron Deposits (B5) ☐ Other (Explain											
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)										
Water-Stained Leaves (B9)	Sphagnum moss (D8)(LRR T, U)										
Field Observations:											
Surface Water Present? Yes No Po Depth (inches	·):										
Water Table Present? Yes No Depth (inches	s):										
Saturation Present? Yes No Depth (inches (includes capillary fringe)	Wetland Hydrology Present? Yes No										
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:										
Remarks:											
Tomano.											

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

Tree Stratum ( Plot size: 30' )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Liriodendron tulipifera	40	Yes	FACU	Number of Dominant Species
2 Acor rubrum	20	Yes	FAC	That Are OBL, FACW, or FAC:  (A)
2 Liquidambar atura aiflua		Yes	FAC	Total Number of Dominant
4		103		Species Across All Strata: 7 (B)
_				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 71% (A/B)
-				Prevalence Index Worksheet:
8		= Total Cover		Total % Cover of: Multiply by:
50% of total cover:		% of total cover:	16	
Sapling/Shrub Stratum (Plot size: 30'		70 OI total cover.		OBL species x1=
		Voc	EAC	FACW species x2=
		Yes	FAC	FAC species x3=
2. Viburnum dentatum		Yes	FAC	FACU species x4=
3. Fraxinus pennsylvanica	5	No	FACW_	UPL species x5=
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6.				I hadron hastic Monototics Indicators
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
		<ul> <li>Total Cover</li> </ul>		X 2 - Dominance Test is > 50%
50% of total cover:		% of total cover:		3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
Herb Stratum (Plot size: 30'				Problematic Hydrophytic Vegetation <sup>1</sup>
1. Quercus alba		No	<u>FACU</u>	(Explain)
Fraxinus pennsylvanica	5	No	_FACW_	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. Viburnum dentatum	30	Yes	FAC	must be present, unless disturbed of problematic.
4. Toxicodendron radicans	5	No	FAC	Definitions of Four Vegetation Strata:
5. Lonicera japonica	30	Yes	FACU	Tree – Woody plants, excluding vines, 3 in. (7.6
6. Ilex opaca	5	No	FAC	cm) or more in diameter at breast height (DBH),
7. Celastrus orbiculatus	10	No	FACU	regardless of height.
8				Sapling/Shrub – Woody plants, excluding vines,
9				less than 3 in. DBH and greater than 3.28 ft (1m) tall.
10				tali.
11				Herb – All herbaceous (non-woody) plants,
12				regardless of size, and woody plants less than 3.28 ft tall.
	90	<ul> <li>Total Cover</li> </ul>		3.20 It tall.
50% of total cover: _	45 20%	of total cover:	18	<b>Woody vine</b> – All woody vines greater than 3.28 ft
Woody Vine Stratum (Plot size: 30'	)			in height.
1				
2				
3				
4				
5				Hydrophytic
		<ul><li>Total Cover</li></ul>		Vegetation
50% of total cover: _	209	% of total cover:		Present? Yes ▼ No □
Remarks: (If observed, list morphological adaptati	ons below).			

Sampling Point: WET G, H-UPL

SOIL

Prof	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)														
[	Depth	Matrix			R	edox Feat	ures								
_(iı	nches)	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remai			Remark	(S		
(	0-10+	10YR 5/4	80	10Y	R 5/6	20	С	M	Sandy	/ Clay Loam					
¹Typ Hydi	e: C=Cc ric Soil I Histoso Histic E Black H Hydrog Stratifie Organi	encentration, D=Deplerendicators: (Application (A1)) Epipedon (A2) Histic (A3) Hen Sulfide (A4) Ed Layers (A5) C Bodies (A6) (LRR P	etion, RM=Rediction, RM=Redict	educed N	Matrix, MS= ss otherwi Polyvalue Thin Darl Loamy M Loamy G Depleted Redox Darl	=Masked Sise noted. e Below Suk Surface (lucky Mine leyed Matrix (F3 ark Surface)	Gand Grains.  )  urface (S8) ( S9) (LRR S, ral (F1) (LRI rix (F2)  3) e (F6) ace (F7)	LRR S, T,U)	2Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :  1 cm Muck (A9) (LRR O)  2 cm Muck (A10) (LRR S)  Reduced Vertic (F18) (outside MLRA 150  Piedmont Floodplain Soils (F19) (LRR P, Anomalous Bright Loamy Soils (F20) (MLRA 153B)  Red Parent Material (TF2)						
	Muck F	uck Presence (A8) (LRR U) Redox Depressions (F8)								Very Shallo	w Dark Su	rface (TF	F12) <b>(LR</b>	R T,U)	
	1 cm M	luck (A9) <b>(LLR P, T)</b>			Marl (F10	) (LRR U)			Other (Explain in Remarks)						
	Deplete	ed Below Dark Surfac	ce (A11)		Depleted	Ochric (F	11) <b>(MLRA 1</b>	51)							
	Thick E	Oark Surface (A12)			Iron-Man	ganese Ma	asses (F12)	(LRR O, P, T	T) <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present,						
	Coast I	Prairie Redox (A16) (	MLRA 150A)		Umbric S	Surface (F1	3) <b>(LRR P, T</b>	<sup>-</sup> , U)							
	Sandy	Mucky Mineral (S1) (	LLR O, S)		Delta Ocl	hric (F17) (	(MLRA 151)			Unle	ss disturbe	d or prol	olematic		
	Sandy	Gleyed Matrix (S4)			Reduced	Vertic (F1	8) <b>(MLRA 15</b>	50A, 150B)							
	Sandy	Redox (S5)			Piedmon	t Floodplai	n Soils (F19	) (MLRA 149	A)						
		d Matrix (S6) urface (S7) <b>(LRR P, S</b>	s, T, U)	<u>                                      </u>	Anomalo	us Bright L	oamy Soils.	(F20) <b>(MLRA</b>	149A,	153C, 153D)					
Т	уре: _	ches):						Hydr	ic Soil	Present?	Yes		No	V	
Rem	arks:														

## DATA FORM ROUTINE WETLAND DETERMINATION (1987 COF Wetlands Delineation Manual

Project/Sile:   L-95 Section 100	\**·		(1987 COE	Wetlands Del	ineation Ma	anual)			
Application Owner: MGTA County: Baltimore Investigator: RB State: MD D  Community ID: GPJR-WET1 Transect ID: A Plot ID: WET  Do Normal Conditions exist on the site? Yes x No Is the site significantly disturbed (Applical situation)? Yes No X No X Is the area a potential Problem Area? Yes No X NO X If the site area a potential Problem Area? Yes No X NO X If the site area a potential Problem Area? Yes No X NO X If the site area a potential Problem Area? If needed, explain on reverse  VEGETATION  Dominant Plant Species  Common Name Scientific Name Stratum Indicator T FAC	1 '						6/17/2003		·
Investigator: RB	1	MdTA				County:			
Do Normal Conditions exist on the site?  Is the site significantly disturbed (Atypical situation)?  Is the site significantly disturbed (Atypical situation)?  Yes No X  Is the area a potential problem Area?  Yes No X  No X  Is the area a potential problem Area?  Problem No X  If needed, explain on reverse   VEGETATION  Dominant Plant Species  Common Name  1. red maple Acor rubrum T FAC  2. sweet gum Liquidambar styraciflua T FAC  2. sweet gum Liquidambar styraciflua T FAC  3. black gum Nyssa sylvatica T FAC  4. arrow wood Viburnum recognitum S FACW-  5. greenbrier Smillax robundifolia V FAC  6. jewelweed Impatiens-capensis H FACW  7. a.  11.  12.  Percent of dominant species that are OBL, FACW or FAC  (excluding FAC-)  Remarks:  HYDROLOGY  Remarks:  Aerial Photographs Other No Recorded Data Available  Other No Recorded Data Available  Tield Observations: Sediment Deposits  Dirit Lines Sediment Direct Part Part Part Part Part Part Part Par	Investigator:	RB		·					
Is the site significantly disturbed (Atypical situation)?  Yes No X  Is the area a potential Problem Area?  If needed, explain on reverse  VEGETATION    Dominant Plant Species	Community ID:	GPJR-WET1		Transect ID:	<b>A</b>	<b>-</b>	Plot ID:		WET
Is the site significantly disturbed (Atypical situation)?  Yes No X  Is the area a potential Problem Area?  If needed, explain on reverse  VEGETATION    Dominant Plant Species	Do Normal Condit	tions exist on the site?					1		
Is the area a potential Problem Area? If needed, explain on reverse    No x   No x			lation)?			-		•	
Dominant Plant Species   Scientific Name   Stratum   Indicator			lauonyr			-			
Dominant Plant Species  Common Name Scientific Name 1. red maple Acer rubrum 1. FAC 3. sweet gum Liquidambar styraciflue 1. FAC 3. black gum Nyssa sylvatica 1. FAC 4. arrow wood Viburum recognitum 5. greenbrier Smilax rotundifolia V FAC 6. jewelweed Impatiens capensis H FACW 7. 8.  11. 12. Percent of dominant species that are OBL, FACW or FAC 100%  (excluding FAC-) Remarks:  HYDROLOGY Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available Water Marks Dirit Lines Sediment Deposits Sediment Deposits Sediment Deposits Sediment Deposits Sediment Deposits Sediment Deposits Secondary Indicators: Depth to Saturated Soil: (in.) Seph to Free Water in Pit: Depth to Saturated Soil: (in.) Seph to Saturated Soil: (in.) Secondary Indicators: Oxidized Root Channels in Upper 12 inches Codicized Root Chann				Yes		_ N	о <u>х</u>		F =
Dominant Plant Species   Scientific Name   Stratum   Indicator	ii needed, explairi	On tevelso			<u> </u>				
Dominant Plant Species   Scientific Name   Stratum   Indicator	VEGETATION								
Common Name Scientific Name Stratum indicator  1 red maple Acer rubrum T FAC  2. sweet gum Liquidambar styractiflus T FAC  3. black gum Nyssa sylvatica T FAC  4. arrow wood Viburmum recognitum S FACW-  5. greenbrier Smilax rotundifolia V FAC  6. jewelweed Impatiens capensis H FACW  7. 8.  11.  12.  Percent of dominant species that are OBL, FACW or FAC 100%  (excluding FAC-)  Remarks:  HYDROLOGY  Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other X Saturated in Upper 12 inches  Mater Marks Drift Lines  Sediment Deposits  Field Observations:  Depth of Surface Water:  Depth to Free Water in Pit: 2 (in.)  Depth to Fac Water in Pit: 2 (in.)  Depth to Saturated Soil: (in.)  X Water-Stained Leaves  Vater (Explain in Remarks)  FAC-Neutral Test  Other (Explain in Remarks)	•	Dominant Pla	nt Species		_	<u> </u>		:	
1. red maple	Comr			n Namo		044	•		
2. sweet gum Liquidambar styraciflua T FAC 3. black gum Nyssa sylvatica T FAC 4. arrow wood Viburum recognitum S FACW- 5. greenbrier Smilax rotundifolia V FAC 6. jewelweed Impatiens capensis H FACW 7. 8.  11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks:  HYDROLOGY Recorded Data (Describe in Remarks): Streams Formary Indicators: Aerial Photographs Other No Recorded Data Available Secondary Indicators: Depth of Surface Water: Depth to Free Water in Pit: 2 (in.) Depth to Saturated Soil: (in.) Seph to Saturated Soil: (in.) Seph to Saturated Soil: (in.) Water Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)					•	Stratum	<del>-</del>		
3. black gum Nyssa sylvatica T FAC 4. arrow wood Viburnum recognitum S FACW- 5. greenbrier Smilax rotundifolia V FAC 6. jewelweed Impatiens capensis H FACW 7. 8.  11. 12. Percent of dominant species that are OBL, FACW or FAC 100%  (excluding FAC-) Remarks:  HYDROLOGY Recorded Data (Describe in Remarks):  Streams	5	•			•	, T			
4. arrow wood Vibumum recognitum S FACW- 5. greenbrier Smilax rotundifolia V FAC 6. jewelweed Impatiens capensis H FACW 7. 8.  11. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks:    Wetland Hydrology Indicators:   Primary Indicators:   Primary Indicators:   Inundated     X Saturated in Upper 12 inches     Water Marks     Drift Lines     Sediment Deposits     X Drainage Patterns in Wetlands     Depth to Free Water in Pit: 2 (in.)     Depth to Free Water in Pit: 2 (in.)     Depth to Saturated Soil: (in.)     Water Stained Leaves     Local Soil Survey Data     FAC-Neutral Test     Other (Explain in Remarks)					•	Ť			
5. greenbrier   Smilax rotundifolia   V   FAC   6. jewelweed   Impatiens capensis   H   FACW   7. 8.									*
6. jewelweed Impatiens-capensis H FACW 7. 8.  11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks:  HYDROLOGY Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available No Recorded Data Available  Tield Observations: Depth of Surface Water: Depth to Saturated Soil:  Depth to Saturated Soil:  Impatiens-capensis H FACW 100%  Wettland Hydrology Indicators: Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		brier	Smilax n	otundifolia					
7. 8. 8. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks:  HYDROLOGY Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Free Water in Pit: Depth to Saturated Soil:  Wetland Hydrology Indicators: Primary Indicators: Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		weed				•			
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks:  HYDROLOGY Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Saturated Soil:  Wetland Hydrology Indicators: Primary Indicators: Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)			-	,		•		FACTY	
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks:  HYDROLOGY Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Saturated Soil:  Wetland Hydrology Indicators: Primary Indicators: Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	8,					• •			•
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)  Remarks:  HYDROLOGY  Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Saturated Soil:  Inundated  Water Marks Drift Lines Sediment Deposits  X Drainage Patterms in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)									
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)  Remarks:  HYDROLOGY  Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Saturated Soil:  Inundated  Water Marks Drift Lines Sediment Deposits  X Drainage Patterms in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	No.								
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)  Remarks:  HYDROLOGY  Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Saturated Soil:  Other  (in.) Depth to Saturated Soil:  Primary Indicators: Inundated X Saturated in Upper 12 inches Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	11.				•				
Wetland Hydrology Indicators:	12.					-		•	
Wetland Hydrology Indicators:	Percent of dominal	nt species that are OBL, FA	CW or FAC			100%			
HYDROLOGY  Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:  Wetland Hydrology Indicators: Primary Indicators: Inundated X Saturated in Upper 12 inches Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches  X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	(excluding FAC-)			-		10070	<u>·</u>		
HYDROLOGY  Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:  Wetland Hydrology Indicators: Primary Indicators: Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches  X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	Remarks:						-		<del></del>
HYDROLOGY  Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:  Wetland Hydrology Indicators: Primary Indicators: Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches  X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		,							
Recorded Data (Describe in Remarks):  Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:  Wetland Hydrology Indicators: Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches  X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			<del></del>					
Streams Aerial Photographs Other No Recorded Data Available  Field Observations:  Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:  Streams  Aerial Photographs Inundated  X Saturated in Upper 12 inches  Water Marks Drift Lines Sediment Deposits  X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches  X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	HYDROLOGY						•		
Streams Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:  Streams Inundated  X Saturated in Upper 12 inches  Water Marks Drift Lines Sediment Deposits  X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches  X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	Recorded Data (De	escribe in Remarks):		Wetland Hyd	rology Indica	itors:			
Aerial Photographs Other No Recorded Data Available  Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil:  Inundated  X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		Streams							
Other No Recorded Data Available  X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Outlines Depth to Saturated Soil: X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		Aerial Photographs		· ·					
No Recorded Data Available  Water Marks  Drift Lines  Sediment Deposits  X Drainage Patterns in Wetlands  Secondary Indicators (2 or more required):  Oepth to Free Water in Pit:  Depth to Saturated Soil:  (in.)  X Water-Stained Leaves  Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)						I Inner 12 in	chee		
Field Observations:  Depth of Surface Water:  Depth to Free Water in Pit:  Depth to Saturated Soil:  Secondary Indicators (2 or more required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves  Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)	No Red	corded Data Available					Cries		
Sediment Deposits    X								,	
X   Drainage Patterns in Wetlands						nocito .			
Depth of Surface Water:  Depth to Free Water in Pit:  Depth to Saturated Soil:  (in.)  Secondary Indicators (2 or more required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves  Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)	Field Observations:						41		
Depth to Free Water in Pit:  Depth to Saturated Soil:  (in.)  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves  Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)	Depth of Surface W	ater:	(in.)	Secondary In	diostom (2 o	renns in Me	ilands		
Depth to Saturated Soil:  (in.)  X Water-Stained Leaves  Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)									
Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)							in Upper 12 inc	ches	-
FAC-Neutral Test Other (Explain in Remarks)	,		()						
Other (Explain in Remarks)									
							_		
arks:				c	лпет (Explaii	n in Remark	(S)		
	arke:	<u> </u>				·	<u> </u>		

Commun	ity ID:	GPJR-WET1	Transect ID:	A	Plot ID: WE	<u></u>
SOILS						
				<del></del>		<del></del>
Map Unit Na		Beltsville Silt Loam, 2-5 p	amont alanas (RtR)	D	rainage Class:	
(Series and		irm Mapped Type?	Yes	No No	lanaye Class.	
		Typic Fragiudults	165	. NO	<b>-</b>	
l axonomy (	Subgroup).	Typic Fragilidatis			<u> </u>	
		Matrix Color	Mottle Colors	Mottle	Textures, Concretions, Str.	icturae
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	20.0.00
Depar (iii)	TIONZON	(Mandell Moles)	(Manacii Molai)	7 (Dustourious Continuos	0.0.	
0-8		10 YR 4/3	10 YR 4/6	10%	··	
8+	*	10 YR 5/2	5 YR 4/4	20%		
07			0 111-11-1			
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		<u>.                                    </u>	<del></del>		· · · · · · · · · · · · · · · · · · ·	
						<b>—</b> ( '
						~
<del>:</del> -			<u> </u>			<del></del>
Hydric Soil I	ndicators:	Yes	x No	)		
(if yes, chec		•				
,,	,	Histosol		Concretions		
		- Histic Epidon		High Organic Content in	n Surface Layer in Sandy So	ils
		Sulfidic Odor		Organic Streaking in Sa	andy Soils	
		Aquic Moisture Regime		Listed on Local Hydric	Soils List	
	X	Reducing Conditions		_Listed on National Hydi	ic Soils List	
		Gleyed or Low-Chroma C	olors	Other (explain in remar	ks)	
						<u>.</u>
Remarks:						
1			•			
				<u></u>		<del></del> .
WETLAND	DETERMIN.	ATION				
Hydrophytic			x No	ls thi	s Sampling Point Within a W	etland
Wetland Hy			x No	·		
Hydric Soils		Yes	x No	Ye	sx No	
1						
Remarks:						

•

Project/Site: I-95 ETL Northbound Extension	City/County: <u>Baltimore</u>	Sampling Date: 8/8/17								
Applicant/Owner: Maryland Transportation Authority	State:	MD Sampling Point: WET I-SP								
Investigator(s): _E. Markel, M. McCormick	Section, Township, Range:Jopp	pa								
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, none):	Concave Slope (%): 0-1.5								
Subregion (LRR or MLRA): MLRA 148	Lat: 39.4003 Long:	76.4258								
Soil Map Unit Name: BeB - Beltsville silt loam, 2 to 5 percent	slopes	NWI classification: PFO								
Are climatic/hydrologic conditions on the site typical for this time	of year? Yes 🔽 No	(If no, explain in Remarks.)								
Are Vegetation Soil or Hydrology I sig		rcumstances" present? Yes 🔽 No 🔲								
Are Vegetation Soil or Hydrology nat	turally problematic? (If needed, expla	ain any answers in Remarks.)								
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.										
Hydrophytic Vegetation Present? Yes V										
Hydric Soil Present? Yes ▼ No	Is the Sampled Area	Yes 🔽 No 🔲								
Wetland Hydrology Present? Yes V	Within a Wetland?									
	P-1									
Remarks:										
HYDROLOGY										
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)								
Primary Indicators (minimum of one is required; check all that ap	oply)	Surface Soil Cracks (B6)								
Surface Water (A1)	Fauna (B13)	Sparsely Vegetated Concave Surface (B8)								
	posits (B15) (LLR U)	Drainage Patterns (B10)								
	en Sulfide Odor (C1)	Moss Trim Lines (B16)								
	d Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)								
	ce of Reduced Iron (C4)	Crayfish Burrows (C8)								
	Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)								
	ıck Surface (C7) Explain in Remarks)	Geomorphic Position (D2) Shallow Aquitard (D3)								
Inundation Visible on Aerial Imagery (B7)	Apiair ir Remarks)	FAC-Neutral Test (D5)								
✓ Water-Stained Leaves (B9)		Sphagnum moss (D8)(LRR T, U)								
Field Observations:										
Surface Water Present? Yes No Depth	(inches):									
Water Table Present? Yes No Depth	(inches):									
Saturation Present? Yes No Depth (includes capillary fringe)	(inches): Wetland Hyd	Irology Present? Yes 🔽 No 🔲								
Describe Recorded Data (stream gauge, monitoring well, aerial p	photos, previous inspections), if availab	ole:								
Remarks:										

VECETATION (Four Streets) Lies exignific names of plants	Sampling Point:	WET I-SP
<b>VEGETATION (Four Strata)</b> – Use scientific names of plants.	•	

Tree Stratum ( Plot size: 30' )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Nyssa sylvatica		Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
2.				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4.     5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 100% (A/B)
7.				
8.				Prevalence Index Worksheet:
	20	<ul> <li>Total Cover</li> </ul>		Total % Cover of: Multiply by:
50% of total cover:	10 200	% of total cover:	4	OBL species x1=
Sapling/Shrub Stratum (Plot size: 30'	)			FACW species x2=
Vaccinium corymbosum		Yes	FACW_	FAC species x3=
2. Acer rubrum		No No	FAC	FACU species x4=
3. Nyssa sylvatica		No No	FAC	UPL species x5=
4. Viburnum dentatum	<u>-</u>	No	FAC	Column Totals: (A) (B)
56.				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
7. 8.				1 - Rapid Test for Hydrophytic Vegetation
		Total Cover		X 2 - Dominance Test is > 50%
50% of total cover:		% of total cover:	7	3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
Herb Stratum (Plot size: 30'				Problematic Hydrophytic Vegetation <sup>1</sup>
1. Juncus effusus		Yes	OBL	(Explain)
2				<sup>1</sup> Indicators of hydric soil and wetland hydrology
3	_			must be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6
6				cm) or more in diameter at breast height (DBH), regardless of height.
7				regardiess of neight.
8				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m)
9.				tall.
10.				
11 12.				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than
12	- <u></u> 5	= Total Cover		3.28 ft tall.
50% of total cover:			1	<b>Woody vine</b> – All woody vines greater than 3.28 ft
Woody Vine Stratum (Plot size: 30'				in height.
1.				
2.				
3.				
4				
5				Hydrophytic
		<ul> <li>Total Cover</li> </ul>		Vegetation
50% of total cover: _	209	% of total cover:		Present? Yes V No
Demonto (finales de la constante de la constan				
Remarks: (If observed, list morphological adaptati	ons below).			

Sampling Point: WET I-SP

Profi	le Descrip	otion: (Describe t	o the depth	needed	to docume	nt the inc	dicator or c	onfirm the a	bsenc	e of indicato	rs.)					
[	Depth	Matrix			Re	dox Feat	ures									
_(ir	nches)_	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	T	exture		Remarl	(S			
	0-4	10YR 3/1	95	10Y	R 3/6	5	C	M	Cla	y Loam						
	4-10	2.5Y 6/3	70	10Y	R 6/8	30	C	M		Clay						
_																
_																
1 Typ	e: C=Cond	centration, D=Deple	etion, RM=Re	educed N	 ∕/atrix, MS=I	——— Masked S	and Grains.		<sup>2</sup> Loc	 cation: PL=Po	ore Lining, I	M=Matri	x.			
Hydr	ic Soil Ind	licators: (Applicat	ole to all LRI	Rs, unle	ss otherwis	se noted.	)		Indicators for Problematic Hydric Soils <sup>3</sup> :							
	Histosol (	(A1)			Polyvalue	Below Su	ırface (S8) <b>(</b>	LRR S, T,U)		1 cm Muck	(A9) <b>(LRR</b> (	0)				
	Histic Epi	ipedon (A2)			Thin Dark	Surface (	S9) (LRR S,	T, U)		2 cm Muck	(A10) <b>(LRR</b>	2 S)				
	Black His	stic (A3)			Loamy Mu	ıcky Mine	ral (F1) <b>(LRI</b>	R O)		Reduced Ve	ertic (F18) <b>(</b>	outside	MLRA 1	50A,B)		
	Hydroger	n Sulfide (A4)			Loamy Gle	eyed Matr	ix (F2)			Piedmont F	loodplain S	oils (F1	9) <b>(LRR</b>	P, S,T)		
	Stratified	Layers (A5)			Depleted I	Matrix (F3	3)			Anomalous	Bright Loa	my Soils	(F20)			
	Organic E	Bodies (A6) (LRR P	, T, U)	~	Redox Da					(MLRA 15	-		` '			
_	-									D 15 1						
Ш	5 cm Mud	cky Mineral (A7) <b>(LI</b>	RR P, T, U)	Depleted Dark Surface (F7)						Red Parent	Material (I	F2)				
	Muck Pre	esence (A8) (LRR U	Redox Depressions (F8)						Very Shallo	w Dark Sur	face (TI	-12) <b>(LR</b>	R T,U)			
	1 cm Mud	ck (A9) (LLR P, T)			Marl (F10)	(LRR U)			Other (Expl	ain in Rema	arks)					
	Depleted	Below Dark Surfac	ce (A11)		Depleted (	Ochric (F	11) <b>(MLRA 1</b>	51)								
			<i>(</i> ( ( ) )							2						
	Thick Da	rk Surface (A12)			Iron-Mang	anese Ma	asses (F12)	(LRR O, P, T	RR O, P, T) <sup>3</sup> Indicators of hydrophytic vegetation and							
	Coast Pra	airie Redox (A16) <b>(</b> I	MLRA 150A)		Umbric Su	ırface (F1	face (F13) (LRR P, T, U) wetland hydrology must be presen						nt,			
	Sandy M	ucky Mineral (S1) (	LLR O, S)		Delta Och	ric (F17) <b>(</b>	MLRA 151)	Unless disturbed or problematic								
	Sandy Gl	leyed Matrix (S4)			Reduced \	Vertic (F1	8) <b>(MLRA 1</b> 5	50A, 150B)								
	Sandy Re	edox (S5)			Piedmont	Floodplai	n Soils (F19	) (MLRA 149	A)							
	Stripped	Matrix (S6)			Anomalou	s Bright L	oamy Soils	(F20) <b>(MLRA</b>	149A,	153C, 153D)						
	• • •	face (S7) <b>(LRR P, S</b>	s, T, U)			3	,	/(	- ,	,						
Rest	rictive Lay	yer (if observed):														
D	epth (inche	es):			_			Hydr	ic Soil	Present?	Yes	V	No			
Rem	arks:															

Project/Site: I-95 ETL Northbound Extension City/Ce	ounty: Baltimore Sampling Date: 8/9/17
Applicant/Owner: Maryland Transportation Authority	State: MD Sampling Point: WET I-UPL
Investigator(s): E. Markel, M. McCormick Sectio	n, Township, Range:
Landform (hillslope, terrace, etc.): Plateau Local I	relief (concave, convex, none): Flat Slope (%): 1
Subregion (LRR or MLRA): MLRA 148 Lat:	39.400297 Long:76.425893 Datum: NAD 83
Soil Map Unit Name: OtA - Othello silt loams, 0 to 2 percent slopes	NWI classification: _Upland
Are climatic/hydrologic conditions on the site typical for this time of year	ar? Yes 🔽 No 🔲 (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significan	ntly disturbed? Are "Normal Circumstances" present? Yes 🔽 No
Are Vegetation Soil or Hydrology naturally	problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes Vegetation Present?	1
	· ▼ Is the Sampled Area Yes  No  I✓
	▼ Within a Wetland?
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Aquatic Fauna	
	(B15) (LLR U) Drainage Patterns (B10)
	fide Odor (C1) Moss Trim Lines (B16)
	cospheres on Living Roots (C3) Dry-Season Water Table (C2)
	Reduced Iron (C4) Crayfish Burrows (C8)
	eduction in Tilled Soils (C6)  Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)  Thin Muck Sull Iron Deposits (B5)  Other (Explain	
	n in Remarks)
Water-Stained Leaves (B9)	Sphagnum moss (D8)(LRR T, U)
	p opnagnam mess (Bo)(Erric 1, 0)
Field Observations:	
Surface Water Present? Yes No Depth (inche	
Water Table Present? Yes No Depth (inche	
Saturation Present? Yes No Depth (inche (includes capillary fringe)	ss): Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos	s, previous inspections), if available:
Remarks:	

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

<u>Tree Stratum</u> ( Plot size: 30' )		solute Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Acer rubrum		80	Yes	FAC	Number of Dominant Species 7 (A)
2. Liquidambar styraciflua		5	No	FAC	That Are OBL, FACW, or FAC:
3. Prunus serotina		5	No	FACU	Total Number of Dominant 10 (B)
4.					Species Across All Strata:
5.					Percent of Dominant Species 70% (A/B)
6.					That Are OBL, FACW, or FAC:
7.					
8.					Prevalence Index Worksheet:
		90	= Total Cover		Total % Cover of: Multiply by:
50% of total cover:	45	20	0% of total cover:	18	OBL species x1=
Sapling/Shrub Stratum (Plot size: 30'		)			FACW species x2=
1. Acer rubrum		10	Yes	FAC	FAC species x3=
2. Vaccinium corymbosum		5	No	FACW	FACU species x4=
3. Viburnum dentatum		10	Yes	FAC	UPL species x5=
4. Ilex opaca		5	No	FAC	Column Totals: (A) (B)
6.					Prevalence Index = B/A =
7.					Hydrophytic Vegetation Indicators:
8.					1 - Rapid Test for Hydrophytic Vegetation
-		30	= Total Cover		X 2 - Dominance Test is > 50%
50% of total cover:	15		0% of total cover:	6	3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
Herb Stratum (Plot size: 30'			070 Of total cover.		Problematic Hydrophytic Vegetation <sup>1</sup>
1 Vihurnum dontatum		5	Yes	FAC	(Explain)
2 Lonicara ignanica		5	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology
Conicera japonica     Rosa multiflora		5	Yes	FACU	must be present, unless disturbed or problematic.
		5	<del></del>		Definitions of Four Vegetation Strate.
···		10	Yes	FACU FAC	Definitions of Four Vegetation Strata:
5. Microstegium vimineum			Yes		<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH),
6. Leersia virginica	_	10	<u>Yes</u>	FACW	regardless of height.
7. Toxicodendron radicans	_	5	<u>Yes</u>	<u>FAC</u>	
8.					Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m)
9.					tall.
10.					
11.					Herb – All herbaceous (non-woody) plants,
12					regardless of size, and woody plants less than 3.28 ft tall.
		45	= Total Cover		
50% of total cover:		_ 20	% of total cover:	9	<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: 30'					in neight.
1.					
2.					
3.					
4.					
5					Hydrophytic
	_		= Total Cover		Vegetation
50% of total cover: _		_ 20	0% of total cover:		Present? Yes 🔽 No
Remarks: (If observed, list morphological adaptati	ons bel	ow).			

Sampling Point: WET I-UPL

Profi	le Descrip	otion: (Describe	to the depth	needed	to documen	nt the inc	licator or c	onfirm the a	bsenc	e of indicator	rs.)			
	Depth	Matrix												
_(ir	nches)_	Color (moist)	%	Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	T	exture		Remark	(S	
	0-2	10YR 4/4	95	10Y	R 4/6	5	C	M	Sandy Clay					
	2-12	10YR 7/6	90	10Y	R 5/8	5	C	M	Sandy Clay					
				10Y	R 6/2	5	D	M	Sandy Clay					
_														
1Type	e: C=Cond	centration, D=Depl	etion, RM=Re	educed N	 //atrix, MS=M	lasked S	and Grains.		<sup>2</sup> Loc	ation: PL=Po	re Lining, I	M=Matri	X.	
Hydr	ic Soil Ind	licators: (Applical	ble to all LRF	Rs, unle	ss otherwise	e noted.)	)		Indi	cators for Pro	blematic	Hydric \$	Soils <sup>3</sup> :	
	Histosol (	(A1)			Polyvalue E	Below Su	rface (S8) <b>(</b> I	LRR S, T,U)		1 cm Muck	(A9) <b>(LRR</b> (	0)		
	Histic Epi	ipedon (A2)			Thin Dark S	Surface (	S9) <b>(LRR S</b> ,	T, U)		2 cm Muck	(A10) <b>(LRR</b>	S)		
□ Black Histic (A3) Loamy Mucky Mineral (F1) (LRR €								R O)		Reduced Ve	ertic (F18) <b>(</b>	outside	MLRA 1	50A,B)
	Hydroger	n Sulfide (A4)			Loamy Gle	yed Matri	ix (F2)			Piedmont Fl	oodplain S	oils (F19	9) <b>(LRR</b>	P, S,T)
	Stratified	Layers (A5)			Depleted M	latrix (F3	)			Anomalous	Bright Loa	my Soils	(F20)	
	Organic E	Bodies (A6) (LRR P	', T, U)		Redox Dark	k Surface	e (F6)			(MLRA 15	3B)			
	5 cm Muc	cky Mineral (A7) <b>(L</b>	RR P, T, U)		Depleted D	ark Surfa	ace (F7)			Red Parent	Material (T	F2)		
	Muck Pre	esence (A8) (LRR L	J)		Redox Dep	ressions	(F8)			Very Shallo	w Dark Sur	face (TF	<sup>-</sup> 12) <b>(LR</b>	R T,U)
	1 cm Mud	ck (A9) (LLR P, T)			Marl (F10) <b>(</b>	(LRR U)				Other (Expla	ain in Rem	arks)		
	Depleted	Below Dark Surface	ce (A11)		Depleted O	chric (F1	1) <b>(MLRA 1</b>	51)						
	Thick Dar	rk Surface (A12)			Iron-Manga	inese Ma	isses (F12)	(LRR O, P, T)	LRR O, P, T) <sup>3</sup> Indicators of hydrophytic vegetation and					
	Coast Pra	airie Redox (A16) <b>(</b>	MLRA 150A)		Umbric Sur	face (F1	3) <b>(LRR P, T</b>	', U)		wetland	d hydrology	/ must b	e preser	nt,
	Sandy Mu	ucky Mineral (S1) (	LLR O, S)		Delta Ochri	ta Ochric (F17) (MLRA 151)  Unless disturbed or problematic								
	Sandy Gl	leyed Matrix (S4)			Reduced V	ertic (F18	3) <b>(MLRA 15</b>	60A, 150B)						
	Sandy Re	edox (S5)			Piedmont F	loodplair	n Soils (F19	) (MLRA 149 <i>i</i>	<b>A)</b>					
		Matrix (S6) face (S7) <b>(LRR P, S</b>	S, T, U)		Anomalous	Bright L	oamy Soils	(F20) <b>(MLRA</b>	149A,	153C, 153D)				
Rest	rictive Lay	yer (if observed):												
T	уре:													
D	epth (inche	es):			_			Hydri	c Soil	Present?	Yes		No	~
Rem	arks:							'						

Project/Site: I-95 ETL Northbound Extension City/Co	unty: <u>Baltimore</u>	Sampling Date: 8/9/17
Applicant/Owner: Maryland Transportation Authority	State: N	MD Sampling Point: WET J-SP
Investigator(s): E. Markel, M. McCormick Section	, Township, Range: <u>Joppa</u>	l .
Landform (hillslope, terrace, etc.): Hillslope Depression Local re	elief (concave, convex, none):	Concave Slope (%): _0-2
Subregion (LRR or MLRA): MLRA 148 Lat:	39.4036 Long:	76.4215
Soil Map Unit Name: BeB - Beltsville silt loam, 2 to 5 percent slopes		NWI classification: PFO
Are climatic/hydrologic conditions on the site typical for this time of year	? Yes 🔽 No 🗆	(If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significant		cumstances" present? Yes   ✓ No
Are Vegetation Soil or Hydrology naturally p	roblematic? (If needed, explain	n any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations	, transects, important features, etc.
Hydrophytic Vegetation Present? Yes   ✓ No		
Hydric Soil Present? Yes   ▼ No	Is the Sampled Area	Yes 🔽 No 🔲
Wetland Hydrology Present? Yes  ▼ No	Within a Wetland?	
Remarks:		
WET J and neighboring wetland GPJR-WET1 have both been impacted	by construction activities	
WET 3 and heighboring welland GF3K-WETT have both been impacted	by construction activities.	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	(D42)	Surface Soil Cracks (B6)
✓       Surface Water (A1)       ☐       Aquatic Fauna         ☐       High Water Table (A2)       ☐       Mari Deposits (	` '	<ul><li>✓ Sparsely Vegetated Concave Surface (B8)</li><li>✓ Drainage Patterns (B10)</li></ul>
High Water Table (A2)		Moss Trim Lines (B16)
	spheres on Living Roots (C3)	Dry-Season Water Table (C2)
	duced Iron (C4)	Crayfish Burrows (C8)
	duction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)  Thin Muck Surf	* *	Geomorphic Position (D2)
Iron Deposits (B5)  Other (Explain	` ,	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	Trionano,	FAC-Neutral Test (D5)
✓ Water-Stained Leaves (B9)		Sphagnum moss (D8)(LRR T, U)
Field Observations:		
Surface Water Present? Yes V No Depth (inches	): 1-2	
	·	
	· ———	ology Present? Yes 🔽 No 🦳
Saturation Present? Yes	y Welland Hydro	ology Present? Yes 🔽 No 🖂
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available	э:
Domeston		
Remarks:		
Culvert outfall from stormwater management facility likely supplying hyd	rology	

			lants.		Sampling Point: WET J-SP					
Tree Stratum ( Plot size:)	Absol % Co		Dominant Species?	Indicator Status	Dominance Test Worksheet:					
. Acer rubrum	60	<u> </u>	Yes	FAC	Number of Dominant Species  (A)					
2. Liquidambar styraciflua	20	1	Yes	FAC	That Are OBL, FACW, or FAC:11					
					Total Number of Dominant Species Across All Strata:  (B)					
					Percent of Dominant Species That Are OBL, FACW, or FAC: 100%					
					Prevalence Index Worksheet:					
·										
500/ 51 1 1	80		Total Cover	40	Total % Cover of: Multiply by:					
50% of total cover:		20	% of total cover:	16	OBL species x1=					
apling/Shrub Stratum (Plot size: 30'					FACW species x2=					
. Acer rubrum			<u>Yes</u>	<u>FAC</u>	FAC species x3=					
Liquidambar styraciflua			Yes	FAC	FACU species x4=					
. Fraxinus pennsylvanica	5		<u>No</u>	FACW	UPL species x5=					
·					Column Totals: (A) (B)					
·					Prevalence Index = B/A =					
					Hydrophytic Vegetation Indicators:					
					1 - Rapid Test for Hydrophytic Vegetation					
	30	<u> </u>	<ul> <li>Total Cover</li> </ul>		X 2 - Dominance Test is > 50%					
50% of total cover: _	15	200	% of total cover:	6	3 - Prevalence Index is ≤ 3.0 <sup>1</sup>					
lerb Stratum (Plot size: 30'	)				Problematic Hydrophytic Vegetation <sup>1</sup>					
Arisaema triphyllum	5		Yes	FACW	(Explain					
2. Boehmeria cylindrica	E		Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology					
3. Toxicodendron radicans			Yes	FAC	must be present, unless disturbed or problematic.					
Scirpus atrovirens	5		Yes	OBL	Definitions of Four Vegetation Strata:					
5. Microstegium vimineum	5		Yes	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6					
6. Leersia virginica	15		Yes	FACW	cm) or more in diameter at breast height (DBH), regardless of height.					
7. 8. 9. 0.					Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.					
1					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than					
	40	<del></del>	Total Cover		3.28 ft tall.					
50% of total cover:			of total cover:	8	Woody vine – All woody vines greater than 3.28 f					
Voody Vine Stratum (Plot size: 30'	)	20 /	or total cover.		in height.					
	, 5		Yes	FAC						
			163	170						
2										
2										
3.										
4.										
					Hydrophytic					
4.	5		Total Cover % of total cover:		Hydrophytic Vegetation Present?  Yes V No					

Sampling Point: WET J-SP

SOIL

Profi	le Descri	ption: (Describe t	o the depth	onfirm the a	bsenc	e of indicator	·s.)							
[	Depth	Matrix			Re	edox Feat	ures							
(ir	nches)	Color (moist)	<u></u> %	Color	(moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	T	exture		Remarl	(S	
	0-2	10YR 4/2	95	10Y	R 5/6	5	C	M		Clay				
	2-10	2.5YR 6/2 70 10YR 5/6 20 C								Clay				
				10Y	R 5/1	10	<u>D</u>	M		Clay				
		·												
1 Typ	e: C=Con	centration, D=Deple	etion, RM=R	educed N	//atrix, MS=	Masked S	and Grains.		<sup>2</sup> Loc	cation: PL=Po	re Lining, I	M=Matri	Х.	
Hydr	ic Soil In	dicators: (Applicat	le to all LR	Rs, unle	ss otherwis	se noted.	)		Indi	cators for Pro	blematic	Hydric	Soils <sup>3</sup> :	
	Histosol	(A1)			Polyvalue	Below Su	ırface (S8) <b>(</b> I	LRR S, T,U)		1 cm Muck (	(A9) <b>(LRR</b>	0)		
	Histic Ep	pipedon (A2)			Thin Dark	Surface (	S9) <b>(LRR S</b> ,	T, U)		2 cm Muck (	(A10) <b>(LRR</b>	S)		
Black Histic (A3)  Loamy Mucky Mineral (F1) (LRR								R O)		Reduced Ve	ertic (F18) <b>(</b>	outside	MLRA 1	50A,B)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)										Piedmont FI	oodplain S	oils (F1	9) <b>(LRR</b>	P, S,T)
	Stratified	l Layers (A5)			Depleted I	Matrix (F3	3)			Anomalous	Bright Loa	my Soils	(F20)	
	Organic	Bodies (A6) (LRR P	, T, U)		Redox Da	rk Surface	e (F6)			(MLRA 15	3B)			
	5 cm Mu	cky Mineral (A7) <b>(Li</b>	RR P, T, U)		Depleted I	Dark Surfa	ace (F7)			Red Parent	Material (T	F2)		
	Muck Pr	esence (A8) (LRR U	)		Redox De	pressions	(F8)			Very Shallov	w Dark Sur	face (TI	-12) <b>(LR</b>	R T,U)
	1 cm Mu	ck (A9) (LLR P, T)			Marl (F10)	(LRR U)				Other (Expla	ain in Rem	arks)		
	Depleted	d Below Dark Surfac	e (A11)		Depleted (	Ochric (F	11) <b>(MLRA 1</b>	51)						
	Thick Da	ark Surface (A12)			Iron-Mang	ganese Ma	asses (F12)	(LRR O, P, T	<sup>3</sup> Indicators of hydrophytic vegetation and					and
	Coast Pi	rairie Redox (A16) <b>(I</b>	WLRA 150A)		Umbric Su	mbric Surface (F13) (LRR P, T, U) wetland hydrology must be					e preser	nt,		
	Sandy M	lucky Mineral (S1) (I	LLR O, S)		Delta Och	ric (F17) <b>(</b>	MLRA 151)		Unless disturbed or problematic					
	Sandy G	ileyed Matrix (S4)			Reduced '	Vertic (F1	8) <b>(MLRA 1</b> 5	60A, 150B)						
	Sandy R	ledox (S5)			Piedmont	Floodplai	n Soils (F19	) (MLRA 149	<b>A</b> )					
		Matrix (S6) rface (S7) <b>(LRR P, S</b>	, T, U)		Anomalou	ıs Bright L	oamy Soils	(F20) <b>(MLRA</b>	149A,	153C, 153D)				
Rest		yer (if observed):	· · ·											
D	epth (inch	nes):			_			Hydr	ic Soil	Present?	Yes	~	No	
Rem	arks:													
Satu	rated 6" be	elow the surface.												

Project/Site: I-95 ETL Northbound Extension	City/County: Baltimore	Sampling Date: 8/9/17
Applicant/Owner: Maryland Transportation Authority	State:	MD Sampling Point: WET K-SP
Investigator(s): E. Markel, M. McCormick	Section, Township, Range: Jopp	pa
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, none):	Concave Slope (%): _1
Subregion (LRR or MLRA): MLRA 148	Lat: <u>39.406</u> Long:	-76.419 Datum: NAD 83
Soil Map Unit Name: CaC - Chillum silt loam, 5 to 10 perce	nt slopes	NWI classification: PUB/PEM
Are climatic/hydrologic conditions on the site typical for this tin	ne of year? Yes 🔽 No │	(If no, explain in Remarks.)
Are Vegetation Soil or Hydrology s	ignificantly disturbed? Are "Normal Ci	rcumstances" present? Yes 🔽 No 🔲
Are Vegetation Soil or Hydrology r	naturally problematic? (If needed, expla	ain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	wing sampling point locations	, transects, important features, etc.
Hydrophytic Vegetation Present? Yes   ▼ N	o 🔲	
Hydric Soil Present? Yes V	Is the Sampled Area	Yes <b>▼</b> No <b>□</b>
Wetland Hydrology Present? Yes   ✓   N	Within a Wetland?	•
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that	apply)	Surface Soil Cracks (B6)
	ic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
☐ High Water Table (A2) ☐ Mari I	Deposits (B15) <b>(LLR U)</b>	□ Drainage Patterns (B10)
Saturation (A3)	gen Sulfide Odor (C1)	Moss Trim Lines (B16)
	zed Rhizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
	nce of Reduced Iron (C4)	Crayfish Burrows (C8)
	nt Iron Reduction in Tilled Soils (C6) Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
	(Explain in Remarks)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	(=	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)		Sphagnum moss (D8)(LRR T, U)
Field Observations:		
Surface Water Present? Yes 🔽 No 🗀 Dep	:h (inches): <u>4-5</u>	
Water Table Present? Yes ☐ No ☑ Dep	th (inches):	
(includes capillary fringe)	` '	drology Present? Yes 🔽 No 🔲
Describe Recorded Data (stream gauge, monitoring well, aeria	al photos, previous inspections), if availab	ole:
Remarks:		
Likely a vernal pool.		
Likely fed from rainfall and uphill runoff.		

				Sampling Point: WET K-SP						
ree Stratum (Plot size: 30' )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:						
				Number of Dominant Species That Are OBL, FACW, or FAC:  (A)						
				Total Number of Dominant 3 (B) Species Across All Strata:						
				Percent of Dominant Species						
				That Are OBL, FACW, or FAC:  100% (A/E						
				Prevalence Index Worksheet:						
	<u> </u>	Total Cover		Total % Cover of: Multiply by:						
50% of total cover:	20%	% of total cover:		OBL species x1=						
pling/Shrub Stratum (Plot size: 30'	)			FACW species x2=						
Liquidambar styraciflua	10	Yes	FAC	FAC species x3=						
				FACU species x4=						
				UPL species x5=						
				Column Totals: (A)						
				Prevalence Index = B/A =						
				Hydrophytic Vegetation Indicators:						
				1 - Rapid Test for Hydrophytic Vegetati						
	10 =	Total Cover		X 2 - Dominance Test is > 50%						
50% of total cover:	5 20%	% of total cover:	2	3 - Prevalence Index is ≤ 3.01						
rb Stratum (Plot size: 30'	)			Problematic Hydrophytic Vegetation <sup>1</sup>						
Lycopus americanus	2	No	OBL	(Expla						
. Microstegium vimineum		Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology						
s. Leersia virginica	40	Yes	FACW	must be present, unless disturbed or problematic						
Lieuvide seb en et me eiffre		No	FAC	Definitions of Four Vegetation Strata:						
Doroinaria amphibia	2	No	OBL							
S. Persicana amprilibia				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.						
3.				Sapling/Shrub – Woody plants, excluding vines						
). ).				less than 3 in. DBH and greater than 3.28 ft (1m) tall.						
				Herb – All herbaceous (non-woody) plants,						
2		Total Cover		regardless of size, and woody plants less than 3.28 ft tall.						
50% of total cover:	-	of total cover:	5.8	Woody vine – All woody vines greater than 3.28 in height.						
oody Vine Stratum (Plot size: 30'										
<u> </u>										
3										
4 5				Hadron barto						
	=	Total Cover		Hydrophytic Vegetation						
	20%	6 of total cover:		Present? Yes V No						
50% of total cover:										
	<u> </u>									
50% of total cover:emarks: (If observed, list morphological adaptati	<u> </u>									
	<u> </u>									
	<u> </u>									

Profile Descrip	otion: (Describe t	to the depth	needed t	o docume	nt the in	dicator or co	onfirm the a	absenc	e of indicator	·s.)			
Depth	Matrix												
(inches)	Color (moist)	%	Color (	maist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	т	exture		Remark	ke.	
0-4	10YR 4/2	95	10YF		5	C			/ Clay Loam		rtoman	ιο	
<u> </u>	101114/2	95	1011	3/0				Sandy	/ Clay Loam				
	-												
•	-												
1- 0.0								2,					
	centration, D=Deple								ation: PL=Po				
	licators: (Applicat	ole to all LRF	ls, unles ⊫⊓			<b>)</b> urface (S8) <b>(</b> I	LRR S,		cators for Pro		-	Solis :	
Histosol (				T,U)					1 cm Muck (				
	ipedon (A2)					(S9) (LRR S,			2 cm Muck (	, ,	-		
Black His				-	-	eral (F1) <b>(LRF</b>	R O)		Reduced Ve				
	n Sulfide (A4) Layers (A5)			Loamy Gle Depleted I	•	. ,			Piedmont FI Anomalous	•	•		۲, ۵,۱)
	Bodies (A6) (LRR P	P. T. U)		Redox Da	-	-			(MLRA 153B		ny dona	s (1 20)	
-	cky Mineral (A7) <b>(L</b>			Depleted I					Red Parent	•	F2)		
	esence (A8) (LRR U			Redox De					Very Shallov	-		=12) <b>(LR</b> I	R T,U)
1 cm Mud	ck (A9) (LLR P, T)			Marl (F10)	(LRR U)				Other (Expla	ain in Rema	arks)		
□ Depleted	Below Dark Surface	ce (A11)		Depleted (	Ochric (F	11) <b>(MLRA 1</b>	51)						
Thick Da	rk Surface (A12)			Iron-Mang	anese M	asses (F12)	(LRR O, P, 1	Γ)	<sup>3</sup> Indicators	s of hydrop	hytic ve	egetation	and
	airie Redox (A16) (				•	13) <b>(LRR P, T</b>	, U)		wetland	l hydrology	must b	e preser	ıt,
	ucky Mineral (S1) (	LLR O, S)				(MLRA 151)			Unles	s disturbed	or prol	blematic	
	eyed Matrix (S4)					18) <b>(MLRA 15</b>							
	edox (S5)					in Soils (F19)			452C 452D)				
	Matrix (S6)	\ <b>T</b> II\		Anomaiou	s bright i	Loanly Solls	(F20) <b>(IVILK</b> )	A 149A,	, 153C, 153D)				
Dark Sur	face (S7) (LRR P, S	s, I, U)											
_	er (if observed):	_											
Type:	,		avel							.,			
Depth (inche	es):	4					Hydr	ic Soil	Present?	Yes	V	No	
Remarks:							I						

Project/Site: I-95 ETL Northbound Extension City	/County: Baltimore	Sampling Date: 8/9/17
Applicant/Owner: Maryland Transportation Authority	State: _	MD Sampling Point: WET J, K-UPL
Investigator(s): E. Markel, M. McCormick Sec	tion, Township, Range: <u>Jopp</u>	a
Landform (hillslope, terrace, etc.): Depression Loc	al relief (concave, convex, none):	Concave Slope (%): _ 0-1.5
Subregion (LRR or MLRA): MLRA 148 Lat:	39.405 Long:	76.42
Soil Map Unit Name: CaC - Chillum silt loam 0 to 5 percent slope	s	NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of y	vear? Yes 🔽 No	(If no, explain in Remarks.)
Are Vegetation Soil or Hydrology signific	cantly disturbed? Are "Normal Cir	cumstances" present? Yes 🔽 No 🔲
Are Vegetation Soil or Hydrology natura	lly problematic? (If needed, expla	in any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations	s, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	V	
Hydric Soil Present? Yes □ No	Is the Sampled Area	Yes No
Wetland Hydrology Present? Yes No	Within a Wetland?	
Remarks:		
Remarks:		
HYDROLOGY		
		Secondary Indicators (minimum of two required)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply	1	Secondary Indicators (minimum of two required)  Surface Soil Cracks (B6)
Surface Water (A1)  Aquatic Fat		Sparsely Vegetated Concave Surface (B8)
	its (B15) <b>(LLR U)</b>	Drainage Patterns (B10)
	Sulfide Odor (C1)	Moss Trim Lines (B16)
	nizospheres on Living Roots (C3)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	f Reduced Iron (C4)	Crayfish Burrows (C8)
☐ Drift Deposits (B3) ☐ Recent Iron	Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Surface (C7)	Geomorphic Position (D2)
☐ Iron Deposits (B5) ☐ Other (Expl	ain in Remarks)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral Test (D5)
Water-Stained Leaves (B9)		Sphagnum moss (D8)(LRR T, U)
Field Observations:		
Surface Water Present? Yes No Po Depth (inc	hes):	
Water Table Present? Yes No Po Depth (inc	hes):	
Saturation Present? Yes No Depth (includes capillary fringe)	hes): Wetland Hydi	rology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	os, previous inspections), if availab	le:
Remarks:		
Nemains.		
		· · · · · · · · · · · · · · · · · · ·

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

<u>Tree Stratum</u> ( Plot size:30' )		Absolute % Cover		Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Acer rubrum		10	_	No	FAC	Number of Dominant Species 3 (A)
2. Liquidambar styraciflua		30	_	Yes	FAC	That Are OBL, FACW, or FAC:
3. Quercus alba		5	_	No	FACU	Total Number of Dominant 9 (B)
4. Quercus falcata		30	_	Yes	FACU	Species Across All Strata:
5. Liriodendron tulipifera		5	_	No	FACU	Percent of Dominant Species 33% (A/B)
6			_			That Are OBL, FACW, or FAC:
7			_			
8			_			Prevalence Index Worksheet:
		80	_ =	Total Cover		Total % Cover of: Multiply by:
50% of total cover:	40	_ 2	20%	of total cover:	16	OBL species x1=
Sapling/Shrub Stratum (Plot size: 30'		)				FACW species x2=
1. Quercus alba		10	-	Yes	FACU	FAC species x3=
2. Liquidambar styraciflua		5	-	Yes	FAC	FACU species x4=
3. Quercus phellos		5	-	Yes	FACW	UPL species x5=
4. Fagus grandifolia		5	-	Yes	FACU	Column Totals: (A) (B)
56.			-			Prevalence Index = B/A =
6			-			Hydrophytic Vegetation Indicators:
8.			-			1 - Rapid Test for Hydrophytic Vegetation
		25	=	Total Cover		2 - Dominance Test is > 50%
50% of total cover:	12.5	2	- 20%	of total cover:	5	3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
Herb Stratum (Plot size: 30'		_				Problematic Hydrophytic Vegetation <sup>1</sup>
1. Quercus alba		5		Yes	FACU	(Explain)
2. Quercus falcata		5	-	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology
3. Prunus serotina		5	-	Yes	FACU	must be present, unless disturbed or problematic.
4.						Definitions of Four Vegetation Strata:
5			_			Tree – Woody plants, excluding vines, 3 in. (7.6
6			_			cm) or more in diameter at breast height (DBH),
7	. <u> </u>		_			regardless of height.
8			_			Sapling/Shrub – Woody plants, excluding vines,
9			_			less than 3 in. DBH and greater than 3.28 ft (1m)
10	. <u>-</u>		_			tall.
11			-			Herb – All herbaceous (non-woody) plants,
12			-			regardless of size, and woody plants less than
		15	_ =	Total Cover		3.28 ft tall.
50% of total cover:	7.5	20	)% c	of total cover:	3	Woody vine – All woody vines greater than 3.28 ft
Woody Vine Stratum (Plot size: 30'	)					in height.
1			-			
2			-			
3						
4			-			
5			-			Hydrophytic
			-	Total Cover		Vegetation
50% of total cover:		2	20%	of total cover:		Present? Yes □ No □
Remarks: (If observed, list morphological adaptation	ons be	low).				

Sampling Point: WET J, K-UPL

Profi	le Descrip	tion: (Describe t	to the depth	needed	to docume	nt the inc	dicator or c	onfirm the a	bsenc	e of indicator	s.)				
[	Depth	Matrix													
_(ir	nches)_	Color (moist)	%	Color	(moist)	moist) % Type <sup>1</sup>			T	exture	Remarks				
	0-3	10YR 3/4	97	10Y	R 7/6	3	C	M	Sandy Clay						
	3-12	10YR 5/8	80	5YF	R 5/8	_20_	C	M	Sar	idy Clay					
_															
_															
1 Typ	e: C=Cond	entration, D=Deple	etion, RM=Re	educed N	 //atrix, MS=N	//asked S	and Grains.	·	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.						
Hydr	ic Soil Ind	licators: (Applicat	ble to all LRI	Rs, unle	ss otherwis	e noted.)	)			ators for Pro					
	Histosol (	A1)			Polyvalue I	Below Su	rface (S8) (I	LRR S, T,U)		1 cm Muck (	(A9) <b>(LRR</b> (	0)			
	Histic Epi	pedon (A2)			Thin Dark	Surface (	S9) <b>(LRR S</b> ,	T, U)		2 cm Muck (	(A10) <b>(LRR</b>	S)			
	Black His	tic (A3)			Loamy Mu	cky Mine	ral (F1) <b>(LRF</b>	R O)		Reduced Ve	ertic (F18) <b>(</b>	outside	MLRA 1	50A,B)	
	Hydroger	n Sulfide (A4)			Loamy Gle	yed Matr	ix (F2)			Piedmont FI	oodplain S	oils (F19	9) <b>(</b> LRR	P, S,T)	
	Stratified	Layers (A5)			Depleted M	/latrix (F3	)			Anomalous	Bright Loai	my Soils	(F20)		
	Organic E	Bodies (A6) (LRR P	P, T, U)		Redox Dar	k Surface	e (F6)			(MLRA 15	3B)				
	E om Mus	oku Minaral (AZ) (Li	DD D T 11)		Depleted F	Santa Counta	(Г7)			Red Parent	Motorial /T	·E3)			
	5 GIII IVIUC	cky Mineral (A7) <b>(L</b> l	KK P, I, U)		Depleted D	ark Suria	ace (F7)			Reu Paleill	iviateriai (1	F2)			
	Muck Pre	esence (A8) (LRR U	J)		Redox Dep	ressions	(F8)			Very Shallov	w Dark Sur	face (TF	12) <b>(LR</b>	R T,U)	
	1 cm Muc	ck (A9) (LLR P, T)			Marl (F10)	(LRR U)				Other (Expla	ain in Rema	arks)			
	Depleted	Below Dark Surface	ce (A11)		Depleted C	Ochric (F1	1) <b>(MLRA 1</b> :	51)							
			, ,	Iron-Manganese Masses (F12) (LRR O, P, T)						3Indicator	s of hydrop	bytic vo	actation	and	
	TRICK Dar	rk Surface (A12)			iron-ivianga	anese wa	isses (F12)		indicators	s of Hydrop	niyuc ve	getation	anu		
	Coast Pra	airie Redox (A16) (	MLRA 150A)		Umbric Su	rface (F1	3) <b>(LRR P, T</b>	, U)	wetland hydrology must be present,						
	Sandy Mu	ucky Mineral (S1) (	LLR O, S)		Delta Ochr	ic (F17) <b>(</b>	MLRA 151)		Unless disturbed or problematic						
	Sandy Gl	eyed Matrix (S4)			Reduced V	ertic (F1	8) <b>(MLRA 15</b>	0A, 150B)							
	Sandy Re	edox (S5)			Piedmont F	Floodplair	n Soils (F19	) (MLRA 149 <i>i</i>	۸)						
	Stripped I	Matrix (S6)			Anomalous	Bright L	oamy Soils	(F20) <b>(MLRA</b>	149A,	153C, 153D)					
	Dark Surf	face (S7) (LRR P, S	S, T, U)												
Rest	rictive Lay	ver (if observed):													
		es):						Hydri	c Sail	Present?	Yes	ш	No	V	
	epui (iiiciie				_			nyun	C SOII	riesent:	165	Ш		اخار	
Rem	arks:														

## DATA FORM ROUTINE WETLAND DETERMINATION (1997 COE Wetlands Delineation Manual)

		987 COE Wetlan	ds Delineation M			
Project/Site:	I-95 Section 100	·		Date:	6/20/2003	· · ·
Applicant/Owner:	MdTA			County:	Baltimore	<u> </u>
Investigator:	RB			_State:	MD	·
Community ID:	BRIS-WET3	Tran	nsect ID: A	_	Piot ID:	WET
Do Normal Conditions	exist on the site?		Yes x	No	)	
	disturbed (Atypical situat	ion)?	Yes	No.	x	
Is the area a potential			Yes	No	x	_
If needed, explain on r			<u>-</u> -	<del></del>		
VEGETATION		<u> </u>	<u> </u>			
	Dominant Plant	Species				
Common	Na <u>me</u>	Scientific Name		Stratum	_	Indicator
1. narrow lea	af cattail	Typha angustifo	lia	H		OBL
2. black willo	₩	Salix nigra		T		FACW+
3.	. Programme of the state of th			•	• • • •	
4.						
5.						
6.	•					
7.						•
8.			•			
	• •					1.92
						• •
11.	•		. •			
12.						
	pecies that are OBL, FAC	W or FAC		100%		
(excluding FAC-)						•
	020, MDE and USACE deter	mined that this resour	ce is not jurisdictional	hecause ner M	DTA 2003 it was	s constructed as a
	anagement structure to treat		ce is not junisdictional	because per ivii	D1A, 2005 it was	s constructed as a
			<del> </del>	·· ,,	<del>,</del>	
HYDROLOGY						
Recorded Data (Descr	ibe in Remarks):	We	tland Hydrology Ind	licators:		
110001000 Daw (2001	Streams	i i	nary Indicators:			
	Aerial Photographs		x Inundated	, ,		•
	Other	<del></del>	Saturated	in Upper 12 i	nches	
No Becon	ded Data Available	. —	Water Ma			•
140 1100011			Drift Lines			
ĺ	•		Sediment			
Field Observations:				Patterns in W	etlands	
Depth of Surface Water	er: 10	(in.) Sec	condary Indicators (			•
Depth to Free Water in		_(in.)			s in Upper 12	inches
Depth to Saturated So		(in.)		ined Leaves	Oppor 12	
Debiu io sainiaien 20		-\""'/ <del> -</del>		Survey Data		
			FAC-Neut	•		
[	•	<del>                                     </del>		plain in Rema	rke)	
		<u> </u>		piairi iii Neilla		
1 Table No signal	of hydrology		<del></del>	<del></del> -		

Commun	ity ID:	BRIS-WET3	Transect ID	):A	Plot ID:	WET
SOILS						
Map Unit Na (Series and		Chillum Norhaminu ailt Iooma	2-5 percent slopes, moderately e		Drainess Class	
Field Obser	ations Conf	irm Mapped Type? Typic Hapludults	Yes	No	Drainage Class:	
Depth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contras	Textures, Concret	ions, Structures,
0-16	В	10 YR4/2	7.5 YR5/6	10%	clay	
					: 	
			· · · · · · · · · · · · · · · · · · ·			
			,	•		
						·
Hydric Soil I		Ye	sx No	o		
(, 500, 000		Histosol		_Concretions		
		Histic Epidon		High Organic Content	-	andy Soils
		Sulfidic Odor Aquic Moisture Regime		_Organic Streaking in S	_	
	•	Reducing Conditions	<del></del>	_Listed on Local Hydric _Listed on National Hyd		
•		Gleyed or Low-Chroma	Colors	Other (explain in rema		•
Remarks:	<u></u>				<del></del>	<u> </u>
Innundated,	all plants are	e obligate, assumed soils	3			
WETLAND I	)FTERMINA	TION				· · · · · · · · · · · · · · · · · · ·
Hydrophytic			x No	ls th	nis Sampling Point W	thin a Wetland
Wetland Hyd						w II contille
Hydric Soils		Yes	X No	> Y	es x	No
Remarks:	Stormwater	management				

.

# DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Project/Site:	I-95 Section 100			Date:	6/20/200	3		
Applicant/Owner:	MdTA			County:	Baltimore			
Investigator:	RB			State:	MD			
Community ID:	BRIS-WET3	BRIS-WET3 Transect ID:				UPL		
Do Normal Condition	s exist on the site?		Yes x	N	0	<del></del>		
Is the site significant	y disturbed (Atypical situa	tion)?	Yes	N		<del>-</del> ·		
Is the area a potentia			Yes			-		
If needed, explain on	reverse					<del>-</del>		
VEGETATION								
VEGETATION	Dominant Plan	Species	· ·			<u> </u>		
Commor		Scientific Name		Stratum		Indicator		
1. crown ve	<del></del>	Coronilla varia		H	<del>-</del>	UPL		
2. bird's foo	ot trefoil	Lotus comiculatus	}	. Н		FACU-		
3. red clove	<b>Э</b> Г	Trifolium pratense		H		FACU-		
4. dandeloi	n .	Taraxacum officina		H	•	UPL		
5. English p	olantain	Plantago lanceola		H		UPL		
6. chickore		Chichorium intybu		H		UPL		
7. common	daisy	Chrysanthemum le		Н		UPL		
8-								
				•				
10.					· -	. *		
11.								
12.								
	species that are OBL, FAC	W or FAC		0%		_		
(excluding FAC-) Remarks:					· · · · · · · · · · · · · · · · · · ·			
Tiemarks.	<u> </u>		<u>.                                      </u>					
HYDROLOGY								
Recorded Data (Desc	ribe in Remarks):	Wetla	nd Hydrology Inc	dicators:				
,	Streams		ry Indicators:					
	Aerial Photographs		inundated	1		•		
	Other		Saturated in Upper 12 inches					
No Reco	rded Data Available		Water Marks					
			Drift Lines	3				
			Sediment	Deposits				
Field Observations:			Drainage	Patterns in W	etlands			
Depth of Surface Wat	er:	(in.) Secon	Secondary Indicators (2 or more required):					
Depth to Free Water i		(in.)		Root Channels	•	nches		
Depth to Saturated So	il:	(in.)	Water-Stained Leaves					
		<u></u>	Local Soil	Survey Data		*		
			FAC-Neutral Test					
- Armed		<u> </u>	Other (Exp	plain in Remai	rks)			
( )	-£ Ludrala er	<u> </u>			<del>-</del>			
ıarks: No signs	or nyarology							

Community ID:	BRIS-WET3	Transect ID	D:A	Plot ID:	UPL
				<del></del>	<u></u>
		· • · · · · · · · · · · · · · · · · · ·			•
SOILS	The second secon	<u> </u>			<u> </u>
Map Unit Name	• •			•	-
Series and Phase):	Chillum-Neshaminy silt loams, 2-5		eroded (CkB2)	Drainage Class:	
Field Observations Con		Yes	_ No		<u></u>
Paxonomy (Subgroup):	Typic Hapludults	2.5			
				÷ "	
	Matrix Color	Mottle Colors	Mottle	Textures, Concre	etions, Structures,
Depth (in) Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Con		• • •
	a section of	•			
0-16	7.5 YR4/3			loam	
			·		
		* * * * * * * * * * * * * * * * * * *		<u> </u>	
	• •	**************************************			
	<del></del>		·		
	,				
	<u> </u>			<u> </u>	
			•		
	·	· · · · · · · · · · · · · · · · · · ·	·	· · · · · · · · · · · · · · · · · · ·	
			•		,
······································		<del></del>		·	
ydric Soil Indicators:	Yes	N1.			
-	res_	No	DX		
yes, check them)	Histosol		0		
	Histic Epidon		_Concretions		
· · · · · · · · · · · · · · · · · · ·	Sulfidic Odor		_ High Organic Con	ent in Surface Layer in	Sandy Soils
<u> </u>	Aquic Moisture Regime		Organic Streaking		
	Reducing Conditions	<del></del>	_Listed on Local Hy		
<u></u>	Gleyed or Low-Chroma Co	lara	_Listed on National	-	•
	Gleyed of Low-Chronia Co		Other (explain in r	emarks)	
emarks:					
emarks.					
<del></del>					
ETLAND DETERMINA	\TION				•
ydrophytic Vegetation i		A1_	<u> </u>	- 4bl- 0 - 12	
		No		s this Sampling Point W	ithin a Wetland
etland Hydrology Pres		No		v	
ydric Soils Present?	Yes	No	)X	Yes	No <u>x</u>
	<del></del>				
emarks:		•			•
		<del></del>	<del></del>		
				··· <del></del>	

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#### WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension  Applicant/Owner: MDTA  Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Hillslope  Subregion (LRR or MLRA): 148 Lat: 39.3871704  Soil Map Unit Name: Sassafras and Croom soils, 15 to 25 percent  Are climatic/hydrologic conditions on the site typical for this time of the Vegetation N, Soil N, or hydrology N, significantly Are Vegetation N, Soil N, or hydrology N, naturally properties and Summary of the Vegetation Present? Yes X, No	t slopes NWI classification: PEM of year? Yes X No (If no, explain in Remarks.) ly disturbed? Are "Normal Circumstances" present? Yes X No roblematic? (If needed, explain any answers in Remarks.)
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:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app  Surface Water (A1) True Aquatic  High Water Table (A2) Hydrogen Sul  Saturation (A3) X Oxidized Rhiz  Water Marks (B1) Presence of R  Sediment Deposits (B2) Recent Iron R  Drift Deposits (B3) Thin Muck Sul  Algal Mat or Crust (B4) Other (Explain  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water-Stained Leaves (B9)  Aquatic Fauna (B13)	Surface Soil Cracks (B6) Plants (B14) Sparsely Vegetated Concave Surface (B8) Ifide Odor (C1) Drainage Patterns (B10) Moss Trim Lines (B16) Leduced Iron (C4) Dry-Season Water Table (C2) Leduction in Tilled Soils (C6) Crayfish Burrows (C8)
Field Observations:  Surface Water Present? Yes No _X Depth (inches):  Water Table Present? Yes No _X Depth (inches):  Saturation Present? Yes No _X Depth (inches):  (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream guage, monitoring well, aerial pho	otos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WMHG-WET10-W1 **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Status Species? Number of Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species 0 = Total Cover20% of total cover: That Are OBL, FACW, or FAC 100 (A/B) 50% of total cover: Sapling Stratum (Plot Size: 15' **Prevalence Index worksheet:** Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total CoverUPL species x5= 20% of total cover: Column Totals: 100 (A) 50% of total cover: Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 2.0**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation X 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 0 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) 1. Phragmites australis Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 100 = Total Cover less than 3 in. (7.6 cm) DBH. 50 20% of total cover: 50% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 30') 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. 0 = Total CoverHydrophytic Vegetation 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WMHG-WET10-W1

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

Depth Matrix Redox Features

(inches)	Matrix		Re	dox Feat	ures			
(menes)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-16	10YR 4/2	90	2.5YR 4/6	10	C	M	Sandy loam	
			-				<u> </u>	_
								_
	· ——		-					
<sup>1</sup> Type: C-	Concentration, D=De	nletion	PM-Paducad Mat	iv MS-N	Macked Sar	nd Grains		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
**		epienon,	KWI-Reduced Wat	17, 1819–1	viaskeu Sai	iu Grains.		
	oil Indicators:		_					Indicators for Problematic Hydric Soils <sup>3</sup> :
	sol (A1)				ace (S7)			2 cm Muck (A10)( <b>MLRA 147</b> )
	e Epipedon (A2)			Polyvalue Below Dark Surface (S8)(MLRA				Coast Prarie Redox (A16)
	Histic (A3)			147, 148				(MLRA 147, 148)
Hydre	ogen Sulfide (A4)		T	nin Dark	Surface (	S9)(MLR	A 147, 148)	Piedmont Floodplain Soils (F19)
	fied Layers (A5)		L	oamy Gl	eyed Matı	ix (F2)		(MLRA 136, 147)
2 cm	Muck (A10) (LRI	<b>R N</b> )	X D	epleted l	Matrix (F3	3)		Very Shallow Dark Surface (TF12)
Deple	eted Below Dark S	urface (	A11)R	edox Da	rk Surface	e (F6)		Other (Explain in Remarks)
Thick	Dark Surface (A1	2)	D	epleted l	Dark Surfa	ace (F7)		<del></del>
Sand	y Mucky Mineral (	S1)( <b>LR</b>			pressions			<sup>3</sup> Indicators of hydrophytic vegetation and
MI	LRA 147, 148)		Ir	on-Mang	ganese Ma	asses (F12)	(LRR N,	wetland hydrology must be present, unless
Sand	y Gleyed Matrix (S	54)		MLRA				disturbed or problematic.
Sand	y Redox (S5)		U	mbric Sı	ırface (F1	3)(MLRA	136, 122)	•
	ped Matrix (S6)		— <sub>P</sub>	edmont	Floodplai	n Soils (F	19)( <b>MLRA 148</b> )	
					-		LRA 127, 147)	
			_			( )(	, ,	
Postricti	ve Layer (if obser	vod).						
Type:	ve Layer (if obser	veu).						
	(in aleas).						Hedria Caila D	magant? Vag V No
Deptii (	(inches):						nyuric sons r	resent? Yes X No No
D 1								
Remarks:								

#### WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension  Applicant/Owner: MDTA  Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Hillslope  Subregion (LRR or MLRA): 148 Lat: 39.3877  Soil Map Unit Name: Sassafras and Croom soils, 15 to 25 per Are climatic/hydrologic conditions on the site typical for this ti Are Vegetation N, Soil N, or hydrology N signific Are Vegetation N, Soil N, or hydrology N naturall	recent slopes NWI classification: UPL reme of year? Yes X No (If no, explain in Remarks.) reantly disturbed? Are "Normal Circumstances" present? Yes X No rely problematic? (If needed, explain any answers in Remarks.)
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:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
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)	surface Soil Cracks (B6) Atic Plants (B14) Sulfide Odor (C1) Rhizospheres on Living Roots (C3) Of Reduced Iron (C4) On Reduction in Tilled Soils (C6) Ak Surface (C7) Plain in Remarks) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:  Surface Water Present? Yes No X Depth (inch Water Table Present? Yes No X Depth (inch Saturation Present? Yes No X Depth (inch (includes capillary fringe)	es):
Describe Recorded Data (stream guage, monitoring well, aerial	photos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: WMHG-WET10-U **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Status Species? Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across All Strata: (B) 0 = Total Cover Percent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 50% of total cover: (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3 =FACU species x4=0 = Total CoverUPL species x5=20% of total cover: Column Totals: 99 (A) 50% of total cover: Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 4.3**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Plantago lanceolata Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Taraxacum officinale FACU Cichorium intybus FACU Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 99 = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover:  $49.\overline{5}$  20% of total cover: 19.8 Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 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. 0 = Total Cover**Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes \_\_\_ No X Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WMHG-WET10-U Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features (inches) Color (moist) Color (moist)  $Loc^2$ % Type<sup>1</sup> Texture Remarks 0-16 7.5YR 4/4 100 Sandy loam Coarse Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Indicators for Problematic Hydric Soils<sup>3</sup>: Hydric Soil Indicators:** Histisol (A1) Dark Surface (S7) 2 cm Muck (A10)(MLRA 147) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Other (Explain in Remarks) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Hydric Soils Present? Yes No X Depth (inches): Remarks:

#### WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension  Applicant/Owner: MDTA  Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Floodplain  Subregion (LRR or MLRA): 148 Lat: 39.3940155  Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slope  Are climatic/hydrologic conditions on the site typical for this time of the Vegetation N, Soil N, or hydrology N, significantly are Vegetation N, Soil N, or hydrology N, naturally prosuper Summary of the Summary	NWI classification: PFO of year? Yes X No (If no, explain in Remarks.) ly disturbed? Are "Normal Circumstances" present? Yes X No roblematic? (If needed, explain any answers in Remarks.)
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:	Secondary Indicators (minimum of two required)
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)	Plants (B14)  Plants (B14)  Sparsely Vegetated Concave Surface (B8)  X Drainage Patterns (B10)  Moss Trim Lines (B16)  Reduced Iron (C4)  Previous Capture (C7)  Sparsely Vegetated Concave Surface (B8)  Note Sparsely Vegetated Concave Surface (B8)  To previous Patterns (B10)  Previous Capture (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)
Field Observations:  Surface Water Present? Yes No X Depth (inches):  Water Table Present? Yes No X Depth (inches):  Saturation Present? Yes No X Depth (inches):  (includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial pho	otos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. BRBR-WET5-W1 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status 50 FAC 1. Acer rubrum Number of Dominant Species 20 FACW 2. Quercus palustris That Are OBL, FACW, or FAC: (A) Quercus phellos FAC Nyssa sylvatica 10 FAC Total Number of Dominant 5. Species Across All Strata: (B) = Total Cover Percent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 100 (A/B) 50% of total cover: Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species 130 x3=390 FACU species x4=0 = Total Cover UPL species x5= 50% of total cover: 20% of total cover: Column Totals: 170 (A) Shrub Stratum (Plot Size: 15' Lindera benzoin **FAC** Prevalence Index = B/A = 2.8Viburnum dentatum **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation X 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 35 = Total Cover 4 - Morphological Adaptations<sup>1</sup> (Provide 50% of total cover:  $17.\overline{5}$  20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Carex intumescens Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) **FACW** Juncus effusus FACW Microstegium vimineum FAC Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover: 12.5 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Toxicodendron radicans including herbaceous vines, regardless of size, and FAC Smilax rotundifolia woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height. 20 = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET5-W1

Profile D	escription: (Descr	ribe to t	he depth needed	to docu	ment the	indicator	or confirm the abser	nce of indicators.)
Depth	Matrix		Rec	dox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	$Loc^2$	Texture	Remarks
0-16	10YR 4/2	90	2.5 YR 4/6	10	С	M	Sandy loam	
<sup>1</sup> Type: C=C	Concentration, D=De	epletion,	RM=Reduced Matr	ix, MS=N	Masked Sa	nd Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
Hydric So	oil Indicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histis	ol (A1)		D	ark Surf	ace (S7)			2 cm Muck (A10)(MLRA 147)
Histic Epipedon (A2)			olyvalue	Below D	ark Surfac	ce (S8)(MLRA	Coast Prarie Redox (A16)	
Black	Histic (A3)			147, 148	3)			(MLRA 147, 148)
Hydro	gen Sulfide (A4)		T	nin Dark	Surface (	(S9)(MLF	RA 147, 148)	Piedmont Floodplain Soils (F19)
	fied Layers (A5)			-	eyed Mat			(MLRA 136, 147)
	Muck (A10) (LRI			_	Matrix (F.			Very Shallow Dark Surface (TF12)
_	ted Below Dark S				rk Surface			Other (Explain in Remarks)
	Dark Surface (A1			•	Dark Surf			
	Mucky Mineral (	S1)(LR			pressions		N/I DD N	<sup>3</sup> Indicators of hydrophytic vegetation and
	RA 147, 148)	1.45				asses (F12	2)(LRR N,	wetland hydrology must be present, unless
	Gleyed Matrix (S	64)		MLRA		2)/MI D	A 136, 122)	disturbed or problematic.
	Redox (S5) ed Matrix (S6)						(130, 122) (19)(MLRA 148)	
Suipp	ed Mailix (50)				-			
			K	ea Paren	it Materia	I (F21)(I <b>VI</b>	LRA 127, 147)	
Dagetariastia	I (:f .h							
Type:	ve Layer (if obser	veu):						
_	in ah aa).						Hedria Caila D	regent? Ves V No
Depth (i	inches).						Hydric Solis Fi	resent? Yes X No
Remarks:								
Kemarks.								

Project/Site: I-95 ETL NB Extension  Applicant/Owner: MDTA  Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Floodplain  Subregion (LRR or MLRA): 148 Lat: 39.39401556  Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes  Are climatic/hydrologic conditions on the site typical for this time of the condition of the site typical for the site typical for this time of the condition of the site typical for	NWI classification: PEM of year? Yes X No (If no, explain in Remarks.) y disturbed? Are "Normal Circumstances" present? Yes X No oblematic? (If needed, explain any answers in Remarks.)
Wetland Hydrology Present?  Yes X No No	within a Wetland? Yes X No
wetland is a constructed drainage ditch that conveys runoff to BRBI	ears. Area was forested, but was cleared for roadway improvements. Portion of R-WUS11.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Water Marks (B1) Sediment Deposits (B2) Presence of Re Recent Iron Re Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	Plants (B14) Fide Odor (C1) Sparsely Vegetated Concave Surface (B8) Fide Odor (C1) Sparsely Vegetated Concave Surface (B8)  X Drainage Patterns (B10) Moss Trim Lines (B16) Educed Iron (C4) Dry-Season Water Table (C2) Eduction in Tilled Soils (C6) Frace (C7) Saturation Visible on Aerial Imagery (C9)
Field Observations:  Surface Water Present? Yes No X Depth (inches):  Water Table Present? Yes No X Depth (inches):  Saturation Present? Yes No X Depth (inches):  (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream guage, monitoring well, aerial pho	tos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. BRBR-WET5-W2 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A) Total Number of Dominant Species Across All Strata: (B) = Total Cover Percent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 100 (A/B) 50% of total cover: Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total CoverUPL species x5= 20% of total cover: Column Totals: 50 (A) 50% of total cover: Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 2.0**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Carex intumescens **FACW** Juncus effusus FACW Microstegium vimineum **FAC** Indicators of hydric soils and wetland hydrology must be Ludwigia alternifolia OBL present, unless disturbed or problematic. **Definitions of 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. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 20% of total cover: 50% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Toxicodendron radicans 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. 10 = Total Cover Hydrophytic Vegetation 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET5-W2

Profile D	escription: (Descr	ribe to t	he depth needed	to docu	ment the	indicator	r or confirm the abse	nce of indicators.)
Depth	Matrix		Rec	dox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-16	10YR 4/2	80	2.5 YR 4/6	20	С	M	Sandy loam	gravel mix within horizon
<sup>1</sup> Type: C=C	Concentration, D=De	epletion,	RM=Reduced Mata	ix, MS=N	Masked Sa	nd Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
Hydric So	oil Indicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histis	ol (A1)		D	ark Surf	ace (S7)			2 cm Muck (A10)(MLRA 147)
Histic	Epipedon (A2)		Po	olyvalue	Below D	ark Surfa	ce (S8)(MLRA	Coast Prarie Redox (A16)
Black	Histic (A3)			147, 148	3)			(MLRA 147, 148)
Hydro	gen Sulfide (A4)		T	nin Dark	Surface (	(S9)(MLI	RA 147, 148)	Piedmont Floodplain Soils (F19)
	fied Layers (A5)			-	eyed Mat			(MLRA 136, 147)
	Muck (A10) (LRI	-		_	Matrix (F.			Very Shallow Dark Surface (TF12)
_	ted Below Dark S				rk Surface			Other (Explain in Remarks)
	Dark Surface (A1			•	Dark Surf			
	Mucky Mineral (	S1)(LR			pressions			<sup>3</sup> Indicators of hydrophytic vegetation and
	RA 147, 148)					asses (F12	2)( <b>LRR N</b> ,	wetland hydrology must be present, unless
	Gleyed Matrix (S	54)		MLRA		2) (MI D	A 126 122)	disturbed or problematic.
	Redox (S5)						A 136, 122)	
	ed Matrix (S6)				-		F19)( <b>MLRA 148</b> )	
			K	ea Paren	it Materia	I (F21)(M	ILRA 127, 147)	
D 4 1 41	T ('6 1	10						
	ve Layer (if obser	vea):						
Type:							TT 11 G 11 B	10 77 77 77
Depth (i	inches):						Hydric Soils Pi	resent? Yes X No No
Remarks:								
Kemarks.								

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/9/17						
Applicant/Owner: MDTA	State: MD Sampling Point: BRBR-WET5-U						
Investigator(s): SA, JM	Section, Township, Range: N/A						
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, convex, none): None Slope (%): 1						
Subregion (LRR or MLRA):         148         Lat:         39.3946320							
Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slope							
Are climatic/hydrologic conditions on the site typical for this time							
Are Vegetation N, Soil N, or hydrology N significant							
Are Vegetation N, Soil N, or hydrology N naturally p	roblematic? (If needed, explain any answers in Remarks.)						
SUMMARY OF FINDINGS Attach site map showing sampli	ing point locations, transects, important features, etc.						
Hydrophytic Vegetation Present? Yes No X							
Hydric Soil Present? Yes No X	Is the Sampled Area						
Wetland Hydrology Present? Yes No X	within a Wetland? Yes No X						
Remarks:							
HYDROLOGY							
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)						
Primary Indicators (minimum of one is required; check all that app							
Surface Water (A1)  True Aquatic							
	lfide Odor (C1)  Drainage Patterns (B10)						
	zospheres on Living Roots (C3)  Moss Trim Lines (B16)						
<del></del>	Reduced Iron (C4) Dry-Season Water Table (C2)						
<del></del>	Reduction in Tilled Soils (C6)  Crayfish Burrows (C8)						
Drift Deposits (B3)  Thin Muck S	and the contract of the contra						
	in in Remarks) Stunted or Stressed Plants (D1)						
Iron Deposits (B5)	Geomorphic Position (D2)						
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)						
Water-Stained Leaves (B9)	Microtopographic Relief (D4)						
Aquatic Fauna (B13)	FAC-Neutral Test (D5)						
TI II OI							
Field Observations: Surface Water Present? Yes No X Depth (inches):							
Water Table Present? Yes No X Depth (inches):							
Saturation Present? Yes No X Depth (inches):							
(includes capillary fringe)	wettand Hydrology Hescht. Hes No _X						
Describe Recorded Data (stream guage, monitoring well, aerial ph	otos, previous inspections), if available:						
	•						
Remarks:							

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: **BRBR-WET5-U Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status Quercus alba 40 Y FACU Number of Dominant Species 30 Liquidambar styraciflua FAC That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B) 70 = Total Cover Percent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 50% of total cover: (A/B) Sapling Stratum (Plot Size: 15' **Prevalence Index worksheet:** Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total Cover UPL species x5= 20% of total cover: Column Totals: 50% of total cover: 155 (A) 535 (B) Shrub Stratum (Plot Size: 15' 1. Acer rubrum **FAC** Prevalence Index = B/A = 3.5Quercus phellos Viburnum recognitum FAC **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 55 = Total Cover 4 - Morphological Adaptations<sup>1</sup> (Provide 50% of total cover: 27.5 20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Podophyllum peltatum Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Trillium sp. 3. Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover: 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Lonicera japonica **FACU** including herbaceous vines, regardless of size, and FACU Parthenocissus quinquefolia woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height. 10 = Total Cover **Hydrophytic Vegetation** Yes \_\_\_\_ No X 50% of total cover: 20% of total cover: Present? Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET5-U Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features (inches) Color (moist) Color (moist)  $Loc^2$ % Type<sup>1</sup> Texture Remarks 0-16 10YR 4/2 100 Loam Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Indicators for Problematic Hydric Soils<sup>3</sup>: Hydric Soil Indicators:** Histisol (A1) Dark Surface (S7) 2 cm Muck (A10)(MLRA 147) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Other (Explain in Remarks) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Hydric Soils Present? Yes No X Depth (inches): Remarks:

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/9/17
Applicant/Owner: MDTA	State: MD Sampling Point: BRBR-WET6-W1
Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Terrace	Section, Township, Range: N/A  Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): 148 Lat: 39.3945437:	
Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slopes	
Are climatic/hydrologic conditions on the site typical for this time of	
Are Vegetation N, Soil N, or hydrology N significantly	
Are Vegetation N, Soil N, or hydrology N naturally pr	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing sampling	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X No
Remarks: Wetland begins at the outfall of a stormwater managemer	I ut facility.
HVDDOLOGV	
HYDROLOGY Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that appl	
Surface Water (A1)  True Aquatic 1	
High Water Table (A2)  Hydrogen Sulf	
	ospheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Re	educed Iron (C4) Dry-Season Water Table (C2)
	eduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Su	
Algal Mat or Crust (B4) Other (Explain	
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Geomorphic Position (D2) Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes X No Depth (inches):	6 Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial pho	tos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. BRBR-WET6-W1 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: (B) = Total Cover Percent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 100 (A/B) 50% of total cover: Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species 10 x3=FACU species x4=0 = Total CoverUPL species x5= 0 20% of total cover: Column Totals: 50% of total cover: 115 (A) 155 (B) Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 1.3**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation X 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Typha latifolia OBL Juncus effusus FACW Carex intumescens 10 **FACW** Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 105 = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover:  $52.\overline{5}$ 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Toxicodendron radicans including herbaceous vines, regardless of size, and **FAC** Smilax rotundifolia woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height. 10 = Total Cover Hydrophytic Vegetation 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET6-W1
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Profile De Depth	escription: (Desc Matrix	rıbe to t		<b>to docu</b> dox Feat		ındicator	or confirm the abse	ence of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-16	10YR 4/2	80	2.5YR 4/1	20	C	M	Clay loam	_
							•	
1								2
	Concentration, D=De	epletion,	RM=Reduced Matı	ix, MS=N	Masked Sa	nd Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
I -	oil Indicators:							<b>Indicators for Problematic Hydric Soils</b> <sup>3</sup> :
	ol (A1)				ace (S7)			2 cm Muck (A10)( <b>MLRA 147</b> )
	Epipedon (A2)			-		ark Surfac	e (S8)(MLRA	Coast Prarie Redox (A16)
	Histic (A3)			147, 148		(CO)/MI D	A 147 140\	(MLRA 147, 148)
	gen Sulfide (A4) ied Layers (A5)				eyed Mat		A 147, 148)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
	Muck (A10) ( <b>LRI</b>	2 N)		-	Matrix (F.			Very Shallow Dark Surface (TF12)
	ted Below Dark S				rk Surface			Other (Explain in Remarks)
	Dark Surface (A1				Dark Surf			(Zpain in Remarks)
	Mucky Mineral (	-		_	pressions			<sup>3</sup> Indicators of hydrophytic vegetation and
ML	RA 147, 148)		Ir	on-Mang	ganese Ma	asses (F12	(LRR N,	wetland hydrology must be present, unless
	Gleyed Matrix (S	54)		MLRA				disturbed or problematic.
	Redox (S5)						136, 122)	
Stripp	ed Matrix (S6)				_		19)( <b>MLRA 148</b> )	
			R	ed Paren	it Materia	1 (F21)( <b>M</b> 1	LRA 127, 147)	
	e Layer (if obser	ved):						
Type:							W 11 G 11 B	10 X7 X7 X7
Depth (i	nches):						Hydric Soils P	resent? Yes X No No
Remarks:								

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/9/17
Applicant/Owner: MDTA	State: MD Sampling Point: BRBR-WET6-U
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): 148 Lat: 39.39454	
Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slo	
Are climatic/hydrologic conditions on the site typical for this tir	
Are Vegetation N, Soil N, or hydrology N signification N signi	
Are Vegetation N, Soil N, or hydrology N naturally	y problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes No_X	Is the Sampled Area
Wetland Hydrology Present? Yes No X	within a Wetland? Yes No _X_
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that a	
	tic Plants (B14)  Sparsely Vegetated Concave Surface (B8)
	Sulfide Odor (C1)  Spansery Vegetared Concave Surface (B6)  Drainage Patterns (B10)
	Rhizospheres on Living Roots (C3)  Moss Trim Lines (B16)
<del></del>	f Reduced Iron (C4)  Dry-Season Water Table (C2)
	n Reduction in Tilled Soils (C6)  Crayfish Burrows (C8)
<u> </u>	Surface (C7) Saturation Visible on Aerial Imagery (C9)
	olain in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inche	·s):
Water Table Present? Yes No X Depth (inche	
Saturation Present? Yes No X Depth (inche	
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial)	photos, previous inspections), if available:
Domontra	
Remarks:	
l .	

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: BRBR-WET6-U **Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status 1. Acer rubrum 40 FAC Number of Dominant Species 2. Quercus alba FACU That Are OBL, FACW, or FAC: (A) Liquidambar styraciflua FAC Total Number of Dominant Species Across All Strata: (B) 90 = Total Cover Percent of Dominant Species That Are OBL, FACW, or FAC 50% of total cover: 20% of total cover: (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total Cover UPL species x5= 20% of total cover: 50% of total cover: Column Totals: 135 (A) 450 (B) Shrub Stratum (Plot Size: 15' 1. Acer rubrum **FAC** Prevalence Index = B/A = 3.3Quercus phellos Viburnum recognitum FAC **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 4 - Morphological Adaptations<sup>1</sup> (Provide 30 = Total Cover 50% of total cover: 15 20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Trillium sp. N/A Podophyllum peltatum FACU Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Lonicera japonica 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. 10 = Total Cover Hydrophytic Vegetation 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET6-U Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features (inches) Color (moist) Color (moist)  $Loc^2$ % Type<sup>1</sup> Texture Remarks 0-16 10YR 5/4 100 Loam Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Indicators for Problematic Hydric Soils<sup>3</sup>: Hydric Soil Indicators:** Histisol (A1) Dark Surface (S7) 2 cm Muck (A10)(MLRA 147) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Other (Explain in Remarks) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Hydric Soils Present? Yes No X Depth (inches): Remarks:

Project/Site: I-95 ETL NB Extension  Applicant/Owner: MDTA  Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Terrace  Subregion (LRR or MLRA): 148 Lat: 39.3980185  Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slope  Are climatic/hydrologic conditions on the site typical for this time of the Vegetation N, Soil N, or hydrology N, significantly	es, stony  NWI classification: PFO of year?  Yes X  No  (If no, explain in Remarks.)
Are Vegetation N, Soil N, or hydrology N naturally problems.  SUMMARY OF FINDINGS Attach site map showing sampling Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No	roblematic? (If needed, explain any answers in Remarks.)
Wetland Hydrology Present? Yes X No Remarks:	within a Wetland? Yes X No
Saturation (A3)  Water Marks (B1)  X Oxidized Rhiz  Presence of R	Plants (B14)  Plants (B14)  Sparsely Vegetated Concave Surface (B8)  X Drainage Patterns (B10)  Moss Trim Lines (B16)  Reduced Iron (C4)  Previous Capture (C7)  Sparsely Vegetated Concave Surface (B8)  Note Sparsely Vegetated Concave Surface (B8)  To previous Patterns (B10)  Previous Capture (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)
Field Observations:  Surface Water Present? Yes No X Depth (inches):  Water Table Present? Yes No X Depth (inches):  Saturation Present? Yes No X Depth (inches):  (includes capillary fringe)  Describe Recorded Data (stream guage, monitoring well, aerial pho	Wetland Hydrology Present? Yes X No  otos, previous inspections), if available:
Hydrology is from a SWM pond outside of right-of-way that may	t be leaking.

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: BRBR-WET98-W1 **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status 50 1. Acer rubrum FAC Number of Dominant Species 20 10 (A) 2. Quercus palustris FACW That Are OBL, FACW, or FAC: Nyssa sylvatica FAC Total Number of Dominant Species Across All Strata: 10 (B) 90 = Total Cover Percent of Dominant Species That Are OBL, FACW, or FAC 100 (A/B) 20% of total cover: 50% of total cover: Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2= FAC species x3=405 FACU species x4=0 = Total Cover UPL species x5= Column Totals: 180 (A) 50% of total cover: 20% of total cover: 495 (B) Shrub Stratum (Plot Size: 15' Lindera benzoin Prevalence Index = B/A = 2.8Viburnum dentatum **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation X 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 35 = Total Cover 4 - Morphological Adaptations<sup>1</sup> (Provide 50% of total cover:  $17.\overline{5}$  20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Microstegium vimineum Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) **FAC** Juncus effusus FACW Carex intumescens **FACW** Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover: 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Toxicodendron radicans including herbaceous vines, regardless of size, and **FAC** Smilax rotundifolia woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height. 15 = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET98-W1

Profile D	escription: (Descr	ribe to t	he depth needed	to docu	ment the	indicator	or confirm the abse	nce of indicators.)
Depth	Matrix		Red	dox Feat	tures			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 4/1	100					Loam	
4-16	10YR 4/2	90	2.5 YR 4/6	10	С	M	Sandy loam	
								_
								_
<sup>1</sup> Type: C=C	Concentration, D=De	epletion,	RM=Reduced Matr	ix, MS=1	Masked Sa	nd Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
Hydric So	oil Indicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histis	ol (A1)		D	ark Surf	ace (S7)			2 cm Muck (A10)( <b>MLRA 147</b> )
	Epipedon (A2)		Po	olyvalue	Below D	ark Surfac	ce (S8)(MLRA	Coast Prarie Redox (A16)
	Histic (A3)			147, 14				(MLRA 147, 148)
	ogen Sulfide (A4)						RA 147, 148)	Piedmont Floodplain Soils (F19)
	fied Layers (A5)			-	leyed Mat			(MLRA 136, 147)
	Muck (A10) (LRI			_	Matrix (F			Very Shallow Dark Surface (TF12)
	ted Below Dark S				rk Surface			Other (Explain in Remarks)
	Dark Surface (A1			•	Dark Surf			2
	Mucky Mineral (	S1)(LR			pressions		VI DD N	<sup>3</sup> Indicators of hydrophytic vegetation and
	RA 147, 148)	1.45				asses (F12	2)(LRR N,	wetland hydrology must be present, unless
	Gleyed Matrix (S	54)		MLRA		2)/MI D	A 126 122)	disturbed or problematic.
	Redox (S5) ed Matrix (S6)						A 136, 122)	
Suipp	ed Mailix (50)				-		F19)(MLRA 148)	
				ed Parei	it Materia	I (F21)(I <b>VI</b>	LRA 127, 147)	
Dagetariastia	I amon (if alcan							
	ve Layer (if obser	vea):						
Type:	. 1 )						II1-1- C-1- D	
Depth (i	incnes):						Hydric Solls Pi	resent? Yes X No No
Remarks:								
Kemarks.								

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/19/17
Applicant/Owner: MDTA	State: MD Sampling Point: BRBR-WET98-W2
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope	Local relief (concave, convex, none): None Slope (%): 2
Subregion (LRR or MLRA): 148 Lat: 39.3975269	
Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent slope	
Are climatic/hydrologic conditions on the site typical for this time of Are Vegetation $N$ , Soil $N$ , or hydrology $N$ significantly	
Are Vegetation N, Soil N, or hydrology N naturally pr	
	(,,,,,
SUMMARY OF FINDINGS Attach site map showing sampling	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X No
D. I	
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that appl	
Surface Water (A1) True Aquatic	
<u> </u>	fide Odor (C1)  X Drainage Patterns (B10)
	zospheres on Living Roots (C3)Moss Trim Lines (B16)
<del></del>	educed Iron (C4)  Dry-Season Water Table (C2)  Crossfield Reviews (C8)
Sediment Deposits (B2)  Drift Deposits (B3)  Recent Iron Ro Thin Muck Su	eduction in Tilled Soils (C6)  Irface (C7)  — Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)  Other (Explain	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
T' I I O C	
Field Observations: Surface Water Present? Yes No X Depth (inches):	
Surface Water Present? Yes No X Depth (inches): Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes No X Depth (inches):	
(includes capillary fringe)	wedand Hydrology Tresent. Tes A No
Describe Recorded Data (stream guage, monitoring well, aerial pho	otos, previous inspections), if available:
Remarks:	
Drainage pattern is a constructed vegetated drainage channel.	

VEGETATION (Five Strata) -- Use Scientific Names of plants. BRBR-WET98-W2 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status Number of Dominant Species (A) That Are OBL, FACW, or FAC: 3 Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species 0 = Total Cover20% of total cover: That Are OBL, FACW, or FAC 50% of total cover: 100 (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3 =FACU species x4=0 = Total CoverUPL species x5=0 20% of total cover: Column Totals: 45 (A) 50% of total cover: Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 1.7**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation X 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Impatiens capensis **FACW** 2. Typha latifolia OBL 3. Onoclea sensibilis FACW Indicators of hydric soils and wetland hydrology must be Aster sp. N/A present, unless disturbed or problematic. Poaceae sp. N/A Solidago sp. N/A **Definitions of Vegetation Strata:** Tree -- Woody plants, excluding woody vines, 8. approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 100 = Total Cover less than 3 in. (7.6 cm) DBH. 50 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 30') 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. 0 = Total CoverHydrophytic Vegetation 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.) Unknown species appear to be part of a seed mix used by MDOT for permanent stabilization.

SOIL Sampling Point: BRBR-WET98-W2

Profile D	escription: (Descr	ribe to t	he depth needed	to docu	ment the	indicator	or confirm the abser	nce of indicators.)
Depth	Matrix		Rec	dox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-16	10YR 3/1	90	2.5YR 4/6	10	C	M	Sandy loam	
<sup>1</sup> Type: C=C	Concentration, D=De	epletion,	RM=Reduced Mata	ix, MS=N	Masked Sa	nd Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
Hydric So	oil Indicators:						•	Indicators for Problematic Hydric Soils <sup>3</sup> :
Histis	ol (A1)		D	ark Surfa	ace (S7)			2 cm Muck (A10)( <b>MLRA 147</b> )
	Epipedon (A2)		Po	olyvalue	Below D	ark Surfac	ce (S8)(MLRA	Coast Prarie Redox (A16)
Black	Histic (A3)			147, 148	3)			(MLRA 147, 148)
	ogen Sulfide (A4)						RA 147, 148)	Piedmont Floodplain Soils (F19)
	fied Layers (A5)				eyed Mat			(MLRA 136, 147)
	Muck (A10) (LRI				Matrix (F.			Very Shallow Dark Surface (TF12)
_	ted Below Dark S				rk Surface			Other (Explain in Remarks)
	Dark Surface (A1			_	Dark Surf			3
	Mucky Mineral (	S1)(LR			pressions		VI DD N	<sup>3</sup> Indicators of hydrophytic vegetation and
	RA 147, 148)	14)		on-Mang <b>MLRA</b>		asses (F12	2)(LRR N,	wetland hydrology must be present, unless
	Gleyed Matrix (S Redox (S5)	54)				3)(MI D/	A 136, 122)	disturbed or problematic.
	ed Matrix (S6)						(130, 122) (19)( <b>MLRA 148</b> )	
	ed Main (50)				-		LRA 127, 147)	
				cu i aicii	ii iviaiciia	1 (1.21)(1 <b>41</b>	LKA 127, 147)	
Restrictiv	ve Layer (if obser	wad).						
Type:	c Layer (if obser	veu).						
Depth (i	inches):						Hydric Soils Pr	resent? Yes X No
Depth (	menes).						Tryuric Bons 11	resent. Tes A 110
Remarks:								

Project/Site: I-95 ETL NB Extension  Applicant/Owner: MDTA  Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Hillslope  Subregion (LRR or MLRA): 148 Lat: 39.3984  Soil Map Unit Name: Mount Lucas silt loam, 3 to 8 percent s.  Are climatic/hydrologic conditions on the site typical for this ti Are Vegetation N, Soil N, or hydrology N signific Are Vegetation N, Soil N, or hydrology N naturall  SUMMARY OF FINDINGS Attach site map showing sam  Hydrophytic Vegetation Present? Yes No X	Iopes NWI classification: UPL Ime of year? Yes X No (If no, explain in Remarks.) In the ime of year? Yes X No (If no, explain in Remarks.) In the improvement of year? Yes X No (If needed, explain any answers in Remarks.)
Hydric Soil Present? Yes No X	Is the Sampled Area
Wetland Hydrology Present? Yes No _X	within a Wetland? Yes No _X_
Remarks:	
HYDROLOGY Westend Hydrology Indicators	Secondary Indicators (minimum of two required)
High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Hydrogen  Oxidized  Presence of  Recent Iron  Thin Muc	Secondary Indicators (minimum of two required)  apply)  Surface Soil Cracks (B6)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Moss Trim Lines (B16)  of Reduced Iron (C4)  on Reduction in Tilled Soils (C6)  ok Surface (C7)  plain in Remarks)  Secondary Indicators (minimum of two required)  Sparsely Vegetated Concave Surface (B8)  Moss Trim Lines (B16)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Stunted or Stressed Plants (D1)  Geomorphic Position (D2)  Shallow Aquitard (D3)  Microtopographic Relief (D4)  FAC-Neutral Test (D5)
Surface Water Present? Yes No X Depth (inch Water Table Present? Yes No X Depth (inch Saturation Present? Yes No X Depth (inch (includes capillary fringe)	es): Wetland Hydrology Present? Yes No X
Describe Recorded Data (stream guage, monitoring well, aerial	photos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: BRBR-WET98-U **Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status 30 FAC 1. Acer rubrum Number of Dominant Species 20 Liriodendron tulipifera FACU That Are OBL, FACW, or FAC: 3 (A) Ouercus alba FACU Total Number of Dominant Species Across All Strata: (B) 65 = Total Cover Percent of Dominant Species 50% of total cover:  $32.\overline{5}$ That Are OBL, FACW, or FAC 20% of total cover: 43 (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total CoverUPL species x5= 0 20% of total cover: Column Totals: 94 (A) 50% of total cover: Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 3.4**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Microstegium vimineum Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 20 = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover: 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Lonicera japonica **FACU** including herbaceous vines, regardless of size, and FAC Toxicodendron radicans woody plants, except woody vines, less than Parthenocissus quinquefolia FACU approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height. = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes \_\_\_ No X Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET98-U

Profile D  Depth	escription: (Description) Matrix	ribe to t	_	<b>to docu</b> dox Feat		indicator	or confirm the abse	nce of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-6	10YR 3/4	100	Color (moist)		Турс	Loc	Loam	Remarks
6-16	10YR 4/4	100					Sandy loam	_
0-10	101104/4	100					Sandy Ioann	_
								_
<sup>1</sup> Type: C=0	Concentration, D=De	enletion	RM=Reduced Mate	ix MS=N	Masked Sa	nd Grains		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
	oil Indicators:	epretion,	11111 11000000 11100	111, 1110 1	Tubica Su	ara Granisi		Indicators for Problematic Hydric Soils <sup>3</sup> :
	ol (A1)		D	ark Surf	ace (S7)			2 cm Muck (A10)( <b>MLRA 147</b> )
	Epipedon (A2)					ark Surfac	e (S8)(MLRA	Coast Prarie Redox (A16)
	Histic (A3)			147, 148		urk Burrue	0 (50)(112141	(MLRA 147, 148)
	ogen Sulfide (A4)					(S9)(MLR	A 147, 148)	Piedmont Floodplain Soils (F19)
	fied Layers (A5)				eyed Mat		,,	(MLRA 136, 147)
	Muck (A10) ( <b>LRI</b>	R N)		•	Matrix (F.			Very Shallow Dark Surface (TF12)
	ted Below Dark S			_	rk Surface			Other (Explain in Remarks)
	Dark Surface (A1				Dark Surf			
	Mucky Mineral (	,		_	pressions			<sup>3</sup> Indicators of hydrophytic vegetation and
ML	RA 147, 148)		—— Ir	on-Mang	ganese Ma	asses (F12)	(LRR N,	wetland hydrology must be present, unless
Sandy	Gleyed Matrix (S	54)		MLRA	136)			disturbed or problematic.
Sandy	Redox (S5)		U	mbric Sı	urface (F1	3)(MLRA	136, 122)	
Stripp	ed Matrix (S6)		Pi	edmont	Floodplai	in Soils (F	19)( <b>MLRA 148</b> )	
			R	ed Paren	nt Materia	l (F21)( <b>M</b> l	LRA 127, 147)	
Type:	ve Layer (if obser	vea):						
Depth (	inches):						Hydric Soils P	resent? Yes No_X_
Remarks:								

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/19/17
Applicant/Owner: MDTA	State: MD Sampling Point: BRBR-WET99-W1
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope	Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA):         148         Lat:         39.3987979	
Soil Map Unit Name: Issue silt loam, occasionally flooded	NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time	
Are Vegetation N, Soil N, or hydrology N significantly Are Vegetation N, Soil N, or hydrology N naturally pr	
Are vegetation N, Son N, or hydrology N naturally pr	oblemanc: (if needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing sampli	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X No
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app	
Surface Water (A1) True Aquatic	
	Ifide Odor (C1) X Drainage Patterns (B10)
<del></del>	zospheres on Living Roots (C3) Moss Trim Lines (B16)
<del></del>	Leduced Iron (C4) Dry-Season Water Table (C2)
<u> </u>	Reduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Su	
	n in Remarks)  Stunted or Stressed Plants (D1)
Iron Deposits (B5)	X Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial pho	otos, previous inspections), if available:
Remarks:	
Termurks.	

VEGETATION (Five Strata) -- Use Scientific Names of plants. BRBR-WET99-W1 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B) 0 = Total CoverPercent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 100 (A/B) 50% of total cover: Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3 =FACU species x4=0 = Total CoverUPL species x5= 0 20% of total cover: Column Totals: 50% of total cover: 10 (A) Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 2.0**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation X 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 4 - Morphological Adaptations<sup>1</sup> (Provide 0 = Total Cover50% of total cover: 0 20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Carex intumescens Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 10 = Total Cover less than 3 in. (7.6 cm) DBH. 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 30') 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. 0 = Total CoverHydrophytic Vegetation 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.) Sparse vegetation. Canopy coverage by *Acer rubrum*.

SOIL Sampling Point: BRBR-WET99-W1

Profile D	escription: (Descr	ribe to t	he depth needed	to docu	ment the	indicator	or confirm the abse	nce of indicators.)
Depth	Matrix		Re	dox Feat	ures			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	$Loc^2$	Texture	Remarks
0-16	2.5Y 4/1	90	2.5YR 4/6	10	С	M	Clay loam	
<sup>1</sup> Type: C=C	Concentration, D=De	epletion,	RM=Reduced Mata	ix, MS=N	Masked Sa	nd Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
Hydric So	oil Indicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histis	ol (A1)		D	ark Surf	ace (S7)			2 cm Muck (A10)(MLRA 147)
Histic	Epipedon (A2)		P	olyvalue	Below D	ark Surfac	e (S8)(MLRA	Coast Prarie Redox (A16)
Black	Histic (A3)			147, 148	3)			(MLRA 147, 148)
Hydro	gen Sulfide (A4)		T	hin Dark	Surface (	(S9)(MLF	RA 147, 148)	Piedmont Floodplain Soils (F19)
	fied Layers (A5)				eyed Mat			(MLRA 136, 147)
	Muck (A10) (LRI				Matrix (F			Very Shallow Dark Surface (TF12)
	ted Below Dark S				rk Surface			Other (Explain in Remarks)
	Dark Surface (A1			_	Dark Surf			2
	Mucky Mineral (	S1)(LR			pressions		VI DD N	<sup>3</sup> Indicators of hydrophytic vegetation and
	RA 147, 148)	1.45				asses (F12	)(LRR N,	wetland hydrology must be present, unless
	Gleyed Matrix (S	54)		MLRA		2)/MI D	1 126 122)	disturbed or problematic.
	Redox (S5) ed Matrix (S6)						A 136, 122) (19)(MLRA 148)	
Suipp	ed Mailix (50)				-			
			K	ed Paren	it Materia	I (F21)(I <b>VI</b>	LRA 127, 147)	
D = =4==1 =41=	I (:f .h							
Type:	ve Layer (if obser	veu):						
_ · -	in ah aa).						Hadaio Coile D	magant? Vag V No
Depth (	inches).						Hyuric Sons F	resent? Yes X No
Remarks:								
Remarks.								

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/9/17
Applicant/Owner: MDTA	State: MD Sampling Point: BRBR-WET99-U
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope	Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA):         148         Lat:         39.39879791	
Soil Map Unit Name: Issue silt loam, occasionally flooded	NWI classification: UPL
Are climatic/hydrologic conditions on the site typical for this time o	
Are Vegetation N, Soil N, or hydrology N significantly	
Are Vegetation N, Soil N, or hydrology N naturally pro	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing samplin	og point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No X	g point rocurrons, transects, important reasures, etc.
Hydric Soil Present? Yes No X	Is the Sampled Area
Wetland Hydrology Present? Yes No X	within a Wetland? Yes No X
Remarks:	<u> </u>
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	
Surface Water (A1) True Aquatic P	
High Water Table (A2) Saturation (A3) Hydrogen Sulf Oxidized Rhize	ide Odor (C1) Drainage Patterns (B10) ospheres on Living Roots (C3) Moss Trim Lines (B16)
<del></del>	
	duced Iron (C4) Dry-Season Water Table (C2)
	eduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)  Thin Muck Sun  Out (F)	
Algal Mat or Crust (B4)  Other (Explain	
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Geomorphic Position (D2) Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Aquatic Faulia (B13)	TAC-Neutral Test (D3)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes No X
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial phot	tos, previous inspections), if available:
D 1	
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. BRBR-WET99-U Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status 30 FAC 1. Acer rubrum Number of Dominant Species 20 Liriodendron tulipifera FACU That Are OBL, FACW, or FAC: 3 (A) Ouercus alba FACU Total Number of Dominant Species Across All Strata: (B) 65 = Total Cover Percent of Dominant Species 50% of total cover:  $32.\overline{5}$ That Are OBL, FACW, or FAC 20% of total cover: 43 (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total CoverUPL species x5= 0 20% of total cover: Column Totals: 94 (A) 50% of total cover: Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 3.4**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Microstegium vimineum Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 20 = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover: 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Lonicera japonica **FACU** including herbaceous vines, regardless of size, and FAC Toxicodendron radicans woody plants, except woody vines, less than Parthenocissus quinquefolia FACU approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height. = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes \_\_\_ No X Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: BRBR-WET99-U

Profile Do Depth	escription: (Descr Matrix	ribe to t	=	<b>to docu</b> lox Feat		indicator	or confirm the abse	nce of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-6	10YR 3/4	100					Loam	
6-16	10YR 4/4	100					Sandy loam	
								_
1								2
		epletion,	RM=Reduced Matri	x, MS=N	Aasked Sai	nd Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
	oil Indicators:							Indicators for Problematic Hydric Soils <sup>3</sup> :
	ol (A1)			ırk Surfa				2 cm Muck (A10)( <b>MLRA 147</b> )
	Epipedon (A2)					ark Surfac	e (S8)(MLRA	Coast Prarie Redox (A16)
	Histic (A3)			147, 148				(MLRA 147, 148)
	ogen Sulfide (A4)						RA 147, 148)	Piedmont Floodplain Soils (F19)
	Fied Layers (A5)	NI)		-	eyed Matı			(MLRA 136, 147)
	Muck (A10) ( <b>LRF</b> ted Below Dark S			_	Matrix (F. rk Surface			Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
_	Dark Surface (A1				Dark Surf			Oner (Explain in Kelliarks)
	Mucky Mineral (	-		•	pressions			<sup>3</sup> Indicators of hydrophytic vegetation and
	RA 147, 148)	21)(211					)(LRR N,	wetland hydrology must be present, unless
	Gleyed Matrix (S	54)		MLRA			,,	disturbed or problematic.
	Redox (S5)	,	Uı	nbric Su	ırface (F1	3)(MLRA	136, 122)	
Stripp	ed Matrix (S6)		Pi	edmont !	Floodplai	n Soils (F	19)( <b>MLRA 148</b> )	
			Re	d Paren	t Materia	(F21)( <b>M</b>	LRA 127, 147)	
Restrictiv	e Layer (if obser	ved):						
Type:								
Depth (	inches):						Hydric Soils P	resent? Yes No X
Remarks:								
1								

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/19/17
Applicant/Owner: MDTA	State: MD Sampling Point: GPJR-WET4-W1
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): 148 Lat: 39.4026019	
Soil Map Unit Name: Elkton silt loam, occasionally flooded	NWI classification: PFO
Are climatic/hydrologic conditions on the site typical for this time of	
Are Vegetation N, Soil N, or hydrology N significantly Are Vegetation N, Soil N, or hydrology N naturally pr	
Are vegetation N, Son N, or hydrology N naturally pro-	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing sampling	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X No No
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that appl	
Surface Water (A1) True Aquatic l	
	fide Odor (C1) X Drainage Patterns (B10)
<del></del>	cospheres on Living Roots (C3)Moss Trim Lines (B16)
<del></del>	educed Iron (C4) Dry-Season Water Table (C2)
<del></del>	eduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)  Thin Muck Su	
Algal Mat or Crust (B4) Other (Explain	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	Shallow Aquitard (D3) Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Aquatic Fauna (D13)	TAC-redutal Test (D3)
Field Observations:	
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes $NoX$ Depth (inches):	Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial pho	otos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. GPJR-WET4-W1 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status 50 Quercus palustris FACW Number of Dominant Species 40 Acer rubrum FAC That Are OBL, FACW, or FAC: 6 (A) Total Number of Dominant Species Across All Strata: (B) 90 = Total Cover Percent of Dominant Species That Are OBL, FACW, or FAC 20% of total cover: 50% of total cover: (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total Cover UPL species x5= 20% of total cover: 50% of total cover: Column Totals: 126 (A) Shrub Stratum (Plot Size: 15' Vaccinium corymbosum **FACW** Prevalence Index = B/A = 2.5Viburnum dentatum FAC Lindera benzoin FAC **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 4 - Morphological Adaptations<sup>1</sup> (Provide 30 = Total Cover 50% of total cover: 20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Lonicera japonica Toxicodendron radicans 3. Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 20% of total cover: 1.2 Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 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. 0 = Total CoverHydrophytic Vegetation 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: GPJR-WET4-W1

	-	ribe to t	-			indicator	or confirm the abse	nce of indicators.)
Depth	Matrix			dox Feat				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-13	10YR 3/1	90	2.5YR 4/6	10	<u>C</u>	M	Loam	
13-16	10YR 5/2	100					Sandy loam	_
								_
								<u> </u>
								<u> </u>
1 <sub>T</sub> C C	Zti D. D.	1.4:	DM Dadasad Mat	MC N	/11 C	- 1 C:		21tion DI Down Living M Matrice
	Concentration, D=D	epietion,	KM=Reduced Mati	1X, MS=N	asked Sai	na Grains.		<sup>2</sup> Location: PL=Pore Lining, M=Matrix
-	oil Indicators:			100	(07)			Indicators for Problematic Hydric Soils <sup>3</sup> :
	ol (A1)			ark Surfa		1.0.0	(CO) (NII D A	2 cm Muck (A10)( <b>MLRA 147</b> )
	Epipedon (A2)			-		ark Surfac	e (S8)(MLRA	Coast Prarie Redox (A16)
	Histic (A3)			147, 148		SOVMI D	A 147, 148)	(MLRA 147, 148)
	ogen Sulfide (A4) fied Layers (A5)				eyed Mati		A 147, 140)	Piedmont Floodplain Soils (F19) (MLRA 136, 147)
	Muck (A10) ( <b>LRI</b>	2 N)		•	Matrix (F.			Very Shallow Dark Surface (TF12)
	ted Below Dark S			_	rk Surface			Other (Explain in Remarks)
_	Dark Surface (A1				Dark Surf			Oner (Explain in remarks)
	Mucky Mineral (				pressions			<sup>3</sup> Indicators of hydrophytic vegetation and
	RA 147, 148)	(~-)(—				asses (F12)	(LRR N,	wetland hydrology must be present, unless
	Gleyed Matrix (S	54)		MLRA			,	disturbed or problematic.
	Redox (S5)	,				3)(MLRA	136, 122)	•
	ed Matrix (S6)		—	iedmont !	Floodplai	n Soils (F	19)( <b>MLRA 148</b> )	
				ed Paren	t Materia	l (F21)( <b>M</b>	LRA 127, 147)	
Restrictiv Type:	ve Layer (if obser	ved):						
Depth (i	inches):						Hudrio Soile D	resent? Yes X No
Deptii (i	inches):						Hydric Solls P	resent? Yes X No No
Remarks:								

Project/Site: I-95 ETL NB Extension  Applicant/Owner: MDTA  Investigator(s): SA, JM  Landform (hillslope, terrace, etc.): Hillslope  Subregion (LRR or MLRA): 148 Lat: 39.4025051  Soil Map Unit Name: Elkton silt loam, occasionally flooded  Are climatic/hydrologic conditions on the site typical for this time  Are Vegetation N, Soil N, or hydrology N significant.  Are Vegetation N, Soil N, or hydrology N naturally p  SUMMARY OF FINDINGS Attach site map showing samplify the soil Power of the site of the sample of the site of the sample of the site of the sample of the sa	NWI classification: UPL of year? Yes X No (If no, explain in Remarks.) ly disturbed? Are "Normal Circumstances" present? Yes X No roblematic? (If needed, explain any answers in Remarks.)  ing point locations, transects, important features, etc.
Hydric Soil Present? Yes No X Wetland Hydrology Present? Yes No X	Is the Sampled Area within a Wetland? Yes No X
Wethand Hydrology Fleschi: Tes No_X	within a victianu.
Remarks:	
HYDROLOGY Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app Surface Water (A1) True Aquatic High Water Table (A2) Hydrogen Su Saturation (A3) Oxidized Rhi Water Marks (B1) Presence of R Sediment Deposits (B2) Recent Iron F Drift Deposits (B3) Thin Muck S Algal Mat or Crust (B4) Other (Explain Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)  Field Observations:  Surface Water Present? Yes No X Depth (inches): Water Table Present? Yes No X Depth (inches):	Plants (B14)  Bride Odor (C1)  Zospheres on Living Roots (C3)  Reduced Iron (C4)  Reduction in Tilled Soils (C6)  In in Remarks)  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)  Stunted or Stressed Plants (D1)  Geomorphic Position (D2)  Shallow Aquitard (D3)  Microtopographic Relief (D4)  FAC-Neutral Test (D5)
Saturation Present? Yes No X Depth (inches):	
(includes capillary fringe)  Describe Recorded Data (stream guage, monitoring well, aerial phones)  Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. Sampling Point: GPJR-WET4-U **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A) Total Number of Dominant Species Across All Strata: (B) 0 = Total Cover Percent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 50% of total cover: (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3 =FACU species x4=240 0 = Total CoverUPL species x5= 150 0 20% of total cover: Column Totals: 100 (A) 50% of total cover: Shrub Stratum (Plot Size: 15' Prevalence Index = B/A = 4.1**Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 0 = Total Cover4 - Morphological Adaptations<sup>1</sup> (Provide 20% of total cover: 50% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Cichorium intybus **FACU** Trifolium repens FACU Leucanthemum vulgare UPL Indicators of hydric soils and wetland hydrology must be Plantago lanceolata 10 UPL present, unless disturbed or problematic. Carex scoparia **FACW** FACU Taraxacum officinale **Definitions of Vegetation Strata:** Tree -- Woody plants, excluding woody vines, 8. approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 100 = Total Cover less than 3 in. (7.6 cm) DBH. 50 20% of total cover: 50% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 30') 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. 0 = Total Cover**Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes \_\_\_ No X Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: GPJR-WET4-U Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Matrix (inches) Color (moist) Color (moist)  $Loc^2$ % Type<sup>1</sup> Texture Remarks 0-18 7.5YR 4/4 100 Sandy loam Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Indicators for Problematic Hydric Soils<sup>3</sup>: Hydric Soil Indicators:** Histisol (A1) Dark Surface (S7) 2 cm Muck (A10)(MLRA 147) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Other (Explain in Remarks) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Hydric Soils Present? Yes No X Depth (inches): Remarks:

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/19/17
Applicant/Owner: MDTA	State: MD Sampling Point: WET95A-W1
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): minor hillslope	Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA):         148         Lat:         39.4049613	
Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes	NWI classification: PFO
Are climatic/hydrologic conditions on the site typical for this time of	
Are Vegetation N, Soil N, or hydrology N significantly Are Vegetation N, Soil N, or hydrology N naturally pr	
Are vegetation N, Son N, or hydrology N naturally pr	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing sampling	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X No
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app	
Surface Water (A1) True Aquatic	
<u> </u>	fide Odor (C1) X Drainage Patterns (B10)
<del></del>	zospheres on Living Roots (C3) X Moss Trim Lines (B16)
	educed Iron (C4) Dry-Season Water Table (C2)
	eduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)  Thin Muck Su	
Algal Mat or Crust (B4) Other (Explain	
Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	X Geomorphic Position (D2) Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Aquatic Faulia (B13)	TAC-redutal Test (D3)
Field Observations:	
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes X No Depth (inches):	8
Saturation Present? Yes X No Depth (inches):	0 Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial pho	otos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. WET95A-W1 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status 30 Nyssa sylvatica FAC Number of Dominant Species 30 Acer rubrum FAC That Are OBL, FACW, or FAC: 6 (A) Quercus palustris FACW Total Number of Dominant Species Across All Strata: (B) 70 = Total Cover Percent of Dominant Species That Are OBL, FACW, or FAC 20% of total cover: 50% of total cover: (A/B) Sapling Stratum (Plot Size: 15' **Prevalence Index worksheet:** Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4=0 = Total Cover UPL species x5= 0 50% of total cover: 20% of total cover: Column Totals: 240 (A) 700 (B) Shrub Stratum (Plot Size: 15' 1. Acer rubrum FAC Prevalence Index = B/A = 2.9Nyssa sylvatica **FAC** Liquidambar styraciflua FAC **Hydrophytic Vegetation Indicators: FACW** 1 - Rapid Test for Hydrophytic Vegetation Quercus palustris 5. 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 60 = Total Cover 4 - Morphological Adaptations<sup>1</sup> (Provide 50% of total cover: 30 20% of total cover: supporting data in Remarks or on a 12 Herb Stratum (Plot Size: 5') separate sheet) Microstegium vimineum Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) **FAC** Juncus effusus FACW Onoclea sensibilis **FACW** Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 100 = Total Cover less than 3 in. (7.6 cm) DBH. 50% of total cover: 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, 1. Toxicodendron radicans including herbaceous vines, regardless of size, and **FAC** FACU Lonicera japonica woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine -- All woody vines, regardless of height. 10 = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET95A-W1 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Matrix Color (moist) Loc<sup>2</sup> (inches) Color (moist) % Type<sup>1</sup> Texture Remarks 0-16 G1 5/N 90 2.5YR 4/6 10 M Loam Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Indicators for Problematic Hydric Soils<sup>3</sup>: Hydric Soil Indicators:** Histisol (A1) 2 cm Muck (A10)(MLRA 147) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Other (Explain in Remarks) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soils Present? Yes X No Remarks:

## $\label{thm:condition} \textbf{WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region}$

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/19/17
Applicant/Owner: MDTA	State: MD Sampling Point: WET95A-U
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA):         148         Lat: 39.405461	6651 Long: -76.4214304374 Datum: NAD83
Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes	NWI classification: UPL
Are climatic/hydrologic conditions on the site typical for this time	
Are Vegetation $N$ , Soil $N$ , or hydrology $N$ significant	
Are Vegetation N, Soil N, or hydrology N naturally p	problematic? (If needed, explain any answers in Remarks.)
STIMMADY OF EINDINGS Attack site man showing compl	ing point leastions transacts important features etc
SUMMARY OF FINDINGS Attach site map showing sample Hydrophytic Vegetation Present? Yes X No	ing point locations, transects, important leatures, etc.
	Is the Compled Area
<u> </u>	Is the Sampled Area
Wetland Hydrology Present? Yes No _X	within a Wetland? Yes No X
Remarks:	L
HYDROLOGY Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app	
	Plants (B14) Sparsely Vegetated Concave Surface (B8)
	olfide Odor (C1) Drainage Patterns (B10)
<del></del>	izospheres on Living Roots (C3) Moss Trim Lines (B16)
	Reduced Iron (C4) Dry-Season Water Table (C2)
	Reduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck S	
	in in Remarks)  Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches)	:
Water Table Present? Yes No X Depth (inches)	
Saturation Present? Yes No X Depth (inches)	
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial ph	notos, previous inspections), if available:
D 1	
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. WET95A-U Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status 25 Acer rubrum FAC Number of Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B) 25 = Total Cover Percent of Dominant Species 12.5 20% of total cover: That Are OBL, FACW, or FAC 50% of total cover: (A/B)Sapling Stratum (Plot Size: 15' **Prevalence Index worksheet:** Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=FACU species x4== Total Cover UPL species x5= 20% of total cover: 50% of total cover: Column Totals: 115 (A) Shrub Stratum (Plot Size: 15' Liquidambar styraciflua **FAC** Prevalence Index = B/A = 3.3Juniperus virginiana FACU Acer rubrum FAC **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 65 = Total Cover 4 - Morphological Adaptations<sup>1</sup> (Provide 50% of total cover:  $32.\overline{5}$  20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Rosa multiflora Toxicodendron radicans Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 20% of total cover: 50% of total cover: 12.5 Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 30' 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. = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET95A-U Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Matrix (inches) Color (moist) Color (moist)  $Loc^2$ % Type<sup>1</sup> Texture Remarks 0-410YR 4/3 100 Loam 4-16 10YR 5/4 100 Clay loam Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Hydric Soil Indicators: Indicators for Problematic Hydric Soils<sup>3</sup>:** Histisol (A1) Dark Surface (S7) 2 cm Muck (A10)(MLRA 147) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Other (Explain in Remarks) Depleted Dark Surface (F7) Thick Dark Surface (A12) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Hydric Soils Present? Yes No X Depth (inches): Remarks:

#### WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/19/17
Applicant/Owner: MDTA	State: MD Sampling Point: WET96A-W1
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): 148 Lat: 39.4065861:	
Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes	NWI classification: PFO
Are climatic/hydrologic conditions on the site typical for this time of	
Are Vegetation N, Soil N, or hydrology N significantly Are Vegetation N, Soil N, or hydrology N naturally pr	
Are vegetation N, Son N, or hydrology N naturally pro-	oblemanc? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing sampling	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X No
Remarks: Area may be old wetland that is drying up.	
remarks. The may be old wettand that is drying up.	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that appl	ly) Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic 1	
<del></del>	fide Odor (C1) Drainage Patterns (B10)
Saturation (A3) X Oxidized Rhiz	cospheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Re	educed Iron (C4) Dry-Season Water Table (C2)
<del></del>	eduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Su	
Algal Mat or Crust (B4)Other (Explain	
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4) FAC-Neutral Test (D5)
Aquatic Fauna (B13)	FAC-Neutral Test (D3)
Field Observations:	
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial pho	tos, previous inspections), if available:
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. WET96A-W1 Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator Tree Stratum (Plot size: 30') % Cover Species? Status 60 Acer rubrum FAC Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A) Total Number of Dominant Species Across All Strata: (B) 60 = Total Cover Percent of Dominant Species 20% of total cover: That Are OBL, FACW, or FAC 50% of total cover: (A/B) Sapling Stratum (Plot Size: 15' Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species FACW species x2=FAC species x3=405 FACU species x4=0 = Total Cover UPL species x5= 20% of total cover: 50% of total cover: Column Totals: 145 (A) 435 (B) Shrub Stratum (Plot Size: 15' Viburnum dentatum **FAC** Prevalence Index = B/A = 3.0Lindera benzoin FAC Liquidambar styraciflua FAC **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 4 - Morphological Adaptations<sup>1</sup> (Provide 70 = Total Cover 50% of total cover: 20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: 5') separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 1. Juncus effusus Rosa multiflora 3. Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 20% of total cover: Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: Herb -- All herbaceous (non-woody) plants, Smilax rotundifolia 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. = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET96A-W1 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Matrix (inches) Color (moist) Loc<sup>2</sup> Color (moist) Type<sup>1</sup> Texture Remarks 0-16 10YR 4/2 97 2.5YR 4/6 3 M Sandy loam Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Indicators for Problematic Hydric Soils<sup>3</sup>: Hydric Soil Indicators:** Histisol (A1) Dark Surface (S7) 2 cm Muck (A10)(MLRA 147) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) X Depleted Matrix (F3) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Other (Explain in Remarks) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soils Present? Yes X No Remarks:

## $\label{lem:wetland} \textbf{WETLAND DETERMINATION DATA FORM -- Eastern Mountains and Piedmont Region}$

Project/Site: I-95 ETL NB Extension	City/County: Baltimore Sampling Date: 12/19/17
Applicant/Owner: MDTA	State: MD Sampling Point: WET96A-U
Investigator(s): SA, JM	Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): <u>148</u> Lat: <u>39.406736</u>	
Soil Map Unit Name: Chillum silt loam, 5 to 10 percent slopes	NWI classification: UPL
Are climatic/hydrologic conditions on the site typical for this time	
Are Vegetation N, Soil N, or hydrology N significan	
Are Vegetation N, Soil N, or hydrology N naturally	problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS Attach site map showing samp	ling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes No X	Is the Sampled Area
Wetland Hydrology Present? Yes No X	within a Wetland? Yes No X
Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that ap	pply) Surface Soil Cracks (B6)
	c Plants (B14) Sparsely Vegetated Concave Surface (B8)
<u> </u>	ulfide Odor (C1)  Drainage Patterns (B10)
	nizospheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of	Reduced Iron (C4) Dry-Season Water Table (C2)
<del></del>	Reduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)  Thin Muck S	Surface (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Expla	ain in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches)	):
Water Table Present? Yes No X Depth (inches)	
Saturation Present? Yes No X Depth (inches)	
(includes capillary fringe)	
Describe Recorded Data (stream guage, monitoring well, aerial pl	notos, previous inspections), if available:
D 1	
Remarks:	

VEGETATION (Five Strata) -- Use Scientific Names of plants. WET96A-U Sampling Point: **Dominance Test Worksheet:** Absolute Dominant Indicator 30') Tree Stratum (Plot size: % Cover Species? Status 40 Acer rubrum FAC Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: (B) 40 = Total Cover Percent of Dominant Species That Are OBL, FACW, or FAC 20% of total cover: 50% of total cover: (A/B) Sapling Stratum (Plot Size: 15' **Prevalence Index worksheet:** Total % Cover of: Multiply by: OBL species FACW species x2=70 FAC species x3=FACU species x4== Total Cover UPL species x5= 20% of total cover: 50% of total cover: Column Totals: 110 (A) Shrub Stratum (Plot Size: 15' Juniperus virginiana **FACU** Prevalence Index = B/A = 3.4Acer rubrum **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 2 -Dominance Test is >50% 3 - Prevalence Index is  $\leq 3.0^1$ 35 = Total Cover 4 - Morphological Adaptations<sup>1</sup> (Provide 50% of total cover:  $17.\overline{5}$  20% of total cover: supporting data in Remarks or on a Herb Stratum (Plot Size: separate sheet) Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Rosa multiflora Smilax rotundifolia 3. Indicators of hydric soils and wetland hydrology must be present, unless disturbed or problematic. **Definitions of 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. 10. Sapling -- Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and = Total Cover less than 3 in. (7.6 cm) DBH. 20% of total cover: 50% of total cover: 17.5 Shrub -- Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Woody Vine Stratum (Plot size: 30' 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. = Total Cover **Hydrophytic Vegetation** 50% of total cover: 20% of total cover: Present? Yes X No Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WET96A-U Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features (inches) Color (moist) Color (moist)  $Loc^2$ % Type<sup>1</sup> Texture Remarks 0-16 10YR 5/3 100 Sandy loam Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix **Indicators for Problematic Hydric Soils<sup>3</sup>: Hydric Soil Indicators:** Histisol (A1) Dark Surface (S7) 2 cm Muck (A10)(MLRA 147) Histic Epipedon (A2) Polyvalue Below Dark Surface (S8)(MLRA Coast Prarie Redox (A16) 147, 148) (MLRA 147, 148) Black Histic (A3) Piedmont Floodplain Soils (F19) Hydrogen Sulfide (A4) Thin Dark Surface (S9)(MLRA 147, 148) Stratified Layers (A5) Loamy Gleyed Matrix (F2) (MLRA 136, 147) 2 cm Muck (A10) (**LRR N**) Very Shallow Dark Surface (TF12) Depleted Matrix (F3) Depleted Below Dark Surface (A11) Other (Explain in Remarks) Redox Dark Surface (F6) Thick Dark Surface (A12) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1)(LRR N, Redox Depressions (F8) <sup>3</sup>Indicators of hydrophytic vegetation and MLRA 147, 148) Iron-Manganese Masses (F12)(LRR N, wetland hydrology must be present, unless Sandy Gleyed Matrix (S4) **MLRA 136**) disturbed or problematic. Umbric Surface (F13)(MLRA 136, 122) Sandy Redox (S5) Stripped Matrix (S6) Piedmont Floodplain Soils (F19)(MLRA 148) Red Parent Material (F21)(MLRA 127, 147) Restrictive Layer (if observed): Type: Hydric Soils Present? Yes No X Depth (inches): Remarks:

Project: _	I-95 ETL Northbound	Extension	Date:	8/21/19	Stream ID:	BRBR-WUS1					
Staff: M	M, AS	Flow Type:	Pereni	nial 🗵	Intermittent $\square$	Ephemeral $\square$					
Flow Direct	ion: SW	Drains In	to:	Bird Rive	-						
Fed By: B	Fed By: BRBR-WUS8, BRBR-WUS9, BRBR-WUS2, WUS T, WUS J, BRBR-WUS8, WUS R, WUS Q										
Bank Height: _2-4' Water Depth: _0-4" Width: _8-10'											
Channel Gr	adient (%): 2-3	Bank Stab	ility:	Modera	nte						
Avg. Bank S	<b>lope:</b> Vertica	2:1	$\boxtimes$	3:1 🗆	4:1 or greater □	1					
Mesohabita	at: % Run: _2	) %	Riffle:	20	% Pool:						
Substrate:	Cobble ⊠ Veg □ Bedrock □	Gravel ⊠ Riprap □		San Concret	_	ilt ⊠ ck ⊠					
Channel Ch	aracteristics: N	atural 🗵	Artific	ial 🗆	Man-altered $\square$						
OHWM:	Clear, natural line in Changes in character Shelving Vegetation matted Leaf litter disturbed Sediment deposition Water staining	er of soil down, bent, or ak or washed away	osent		Presence of litter and Destruction of terrestrestrestrestrestrestrestrestrestr	rial veg.					
Photos? (	Jpstream ⊠ Do	wnstream 🗵									
Connection	to Traditional Nav	igable Waterwa	ay: _	Stream is	a tributary to the Bi	rd River, a TNW.					
Other Com	ments: Previous	ly delineated un	nder th	ie I-95 ET	L Section 100 Permit	i.					

Project:	I-95 ETL Northbound	Extension Date	: 8/21/19	9 Stream ID:	WUS Q	
Staff: N	1M, AS	Flow Type: Pere	nnial $\square$	Intermittent $\square$	Ephemeral 🗵	]
Flow Direc	ction: E	Drains Into:	BRBR-W	US1		
Fed By:	BRBR-WET21 and up	land sheet flow.				
Bank Heig	ht: <u>1-3'</u>	Water Depth: 0	,	Width: _3'		
Channel G	radient (%): <u>1-3</u>	Bank Stability:	Moder	ate		
Avg. Bank	Slope: Vertica	1 □ 2:1 ⊠	3:1 🗆	4:1 or greater □	]	
Mesohabi	tat: % Run: <u>1</u>	00 % Rifflo	e: <u>0</u>	% Pool:		
Substrate:	: Cobble ⊠ Veg ⊠ Bedrock □	Gravel ⊠ Riprap □	Sar Concre		ilt ⊠ ck □	
Channel C	haracteristics: N	atural 🗵 💮 Artif	icial $\square$	Man-altered $\square$		
онwм:	Changes in characte Shelving	down, bent, or absent I or washed away		Presence of litter and Destruction of terrests Presence of wrack line Sediment sorting Scour Multiple observed/pre Abrupt change in plan	rial veg. e edicted flow events	
Photos?	Upstream ⊠ Do	wnstream 🗵				
Connectio Bird River,	n to Traditional Nav a TNW.	igable Waterway:	Yes, flow	rs into BRBR-WUS1, a	a tributary to the	
Other Con	nments:					

Project:	I-95 ETL Northbound	Extension Date:	8/21/19	Stream ID:	WUS R	
Staff: N	MM, AS	Flow Type: Pere	nnial $\square$	Intermittent $\Box$	Ephemeral 🗵	]
Flow Dire	ction: SE	Drains Into:	BRBR-WU	S1		
Fed By:	Upland runoff					
Bank Heig	ght: <u>1'</u>	Water Depth: 0'	,	Width:3'		
Channel (	Gradient (%): 3	Bank Stability:	Modera	te		
Avg. Bank	<b>Slope:</b> Vertica	1 □ 2:1 ⊠	3:1 🗆	4:1 or greater □	]	
Mesohab	itat: % Run: <u>1</u>	00 % Riffle	e: <u>0</u>	% Pool:	0	
Substrate	e: Cobble □ Veg □ Bedrock □	Gravel ⊠ Riprap □	Sand Concrete		ilt □ ck □	
Channel C	Characteristics: N	atural 🗵 🛚 Artifi	icial 🗆	Man-altered $\square$		
OHWM:	Changes in charactors Shelving	down, bent, or absent I or washed away	□	Presence of litter and Destruction of terrest Presence of wrack line Sediment sorting Scour Multiple observed/preservet change in plan	rial veg. e edicted flow events	
Photos?	Upstream ⊠ Do	wnstream 🗵				
Connection Bird River	on to Traditional Nav	igable Waterway:	Yes, flows	into BRBR-WUS1, a	a tributary to the	
Other Cor	mments: Runoff c	hannel connects to B	BRBR-WUS1			

Project: _	I-95 ETL Northbound	Extension Dat	e: 8/21/1	Stream ID:	BRBR-WUS8	
Staff: M	M, AS	Flow Type: Per	ennial 🗵	Intermittent $\square$	Ephemeral [	
Flow Direct	ion: SE	Drains Into:	BRBR-W	/US1		
Fed By: B	RBR-WUS11					
Bank Heigh	t: <u>2-4'</u>	Water Depth:	2-4"	Width: _8'		
Channel Gra	adient (%): <u>1</u>	Bank Stability	: Poor t	to moderate		
Avg. Bank S	<b>lope:</b> Vertica	1 ⊠ 2:1 ⊠	3:1 🗆	4:1 or greater □	]	
Mesohabita	a <b>t:</b> % Run: <u>9</u>	0 % Riff	e: <u>0</u>	% Pool:	_10	
Substrate:	Cobble UVeg UBedrock U	Gravel □ Riprap □	Sa Concre		ilt ⊠ ck ⊠	
Channel Ch	aracteristics: N	atural 🗵 💮 Arti	ficial $\square$	Man-altered ⊠		
OHWM:	Changes in characters Shelving	down, bent, or abser I or washed away		Presence of litter and Destruction of terreste Presence of wrack line Sediment sorting Scour Multiple observed/pre Abrupt change in plan	rial veg. e edicted flow events	
Photos? (	Jpstream ⊠ Do	wnstream 🗵				
Connection Bird River, a	to Traditional Nav	igable Waterway:	Yes, flow	ws into BRBR-WUS1, a	a tributary to the	
Other Com	ments: Previous	ly delineated under	· I-95 ETL S	ection 100 permit.		

Project:	I-95 ETL Northbound	Extension Dat	e: 8/21/1	Stream ID:	WUS S	
Staff: _	MM, AS	Flow Type: Per	ennial $\square$	Intermittent ⊠	Ephemeral $\square$	
Flow Dire	ection: N	Drains Into:	BRBR-W	/US8		
Fed By:	SW Outfall					
Bank Hei	ght: <u>0-1'</u>	Water Depth: _	1-2"	Width: _6′		
Channel (	Gradient (%): 0-1	Bank Stability	y: Mode	rate		
Avg. Ban	<b>k Slope:</b> Vertica	I □ 2:1 □	3:1 □	4:1 or greater 2	₫	
Mesohab	<b>nitat:</b> % Run: <u>5</u>	0 % Rif	fle: <u>0</u>	% Pool:	50	
Substrate	e: Cobble □ Veg ⊠ Bedrock □	Gravel □ Riprap □	Sa Concre		Silt ⊠ ck ⊠	
Channel (	Characteristics: N	latural 🗆 Art	ificial $\square$	Man-altered ⊠		
онwм:	Changes in characters Shelving	down, bent, or abser d or washed away		Presence of litter and Destruction of terrest Presence of wrack lin Sediment sorting Scour Multiple observed/pr Abrupt change in plan	crial veg. e edicted flow events	
Photos?	Upstream ⊠ Do	wnstream 🗵				
Connection	on to Traditional Nav	igable Waterway:	Yes, flow	vs to BRBR-WUS8, a	tributary to the	
Other Co	mments: Hydrolog	gy from unknown b	ox structur	e (Unclear where wa	ter originates).	

<b>Project:</b> I-95 ETL Northbound Ex	tension Date:	8/21/19	Stream ID:	BRBR-WUS7				
Staff: MM, AS F	low Type: Peren	nial 🗵	Intermittent $\square$	Ephemeral □				
Flow Direction: SW	Drains Into:	BRBR-WUS	1					
Fed By: A different section of E	BRBR-WUS1							
Bank Height: 2-4'	Water Depth: 2-8	)	Width: 6-18					
Channel Gradient (%): _1	Bank Stability:	Moderat	e					
Avg. Bank Slope: Vertical	□ 2:1 ⊠	3:1 🗵	4:1 or greater $\Box$					
Mesohabitat: % Run: 60	% Riffle:	10	% Pool:	30				
Substrate: Cobble ⊠ Veg □ Bedrock □	Gravel ⊠ Riprap □	Sand Concrete	⊠ Si ⊠ Mud					
Channel Characteristics: Nat	cural 🗵 Artific	ial 🗆	Man-altered $\square$					
Clear, natural line important Changes in character Shelving Vegetation matted do Leaf litter disturbed of Sediment deposition Water staining	of soil own, bent, or absent	<ul> <li>□ Do</li> <li>⋈ Pr</li> <li>□ So</li> <li>□ Mo</li> </ul>	esence of litter and of estruction of terrestries esence of wrack line ediment sorting our ultiple observed/preprupt change in plant	ial veg.				
Photos? Upstream ⊠ Dow	nstream 🗵							
Connection to Traditional Navigable Waterway: Yes, a tributary to the Bird River, a TNW.								
<b>Other Comments:</b> Was previous and BRBR-WUS1 are different po	ously delineated und ortions of the same s		•					
preserved.								

Project:	I-95 ETL No	orthbound Extension	Date:	8/21/19	Stream ID:	WUS G	
Staff: N	MM, AS	Flow Type:	Peren	nial $\square$	Intermittent $\square$	Ephemeral ⊠	
Flow Dire	ection: S	Drain	s Into:	BRBR-WU	57		
Fed By:	WET D and	upland runoff					
Bank Heig	ght: <u>3-12"</u>	Water Dep	oth: 0"		Width: 12-1	18"	
Channel C	Gradient (%)	: <u>1-2%</u> Bank S	Stability:	Poor			
Avg. Bank	c Slope:	Vertical □ 2	:1 🗵	3:1 🗆	4:1 or greater □	]	
Mesohab	itat: %	Run:100	% Riffle:	0	% Pool:	0	
Substrate	: Cobble Veg Bedrock			Sand Concrete	_	ilt ⊠ ck □	
Channel C	Characterist	ics: Natural ⊠	Artific	ial 🗆	Man-altered $\square$		
OHWM:	Changes i Shelving Vegetatio Leaf litter	cural line impressed on in character of soil on matted down, bent, or disturbed or washed a deposition aining	or absent	□ D □ S □ S □ N	resence of litter and estruction of terrestores of wrack line ediment sorting cour fultiple observed/prebrupt change in plan	rial veg.	
Photos?	Upstream	□ Downstream	$\boxtimes$				
		onal Navigable Wate ary to the Bird River, a	-	Continues	outside of the Stud	dy Area to	
Other Cor	mments:	WUS G is a small cha	innel that	is fed by a	wetland to the nor	th (WET D).	

Project:	I-95 ETL Northboun	d Extension	Date:	8/21/19	Stream ID:	WUS H	
Staff: M	IM, AS	Flow Type:	Peren	nial $\square$	Intermittent $\Box$	Ephemeral ⊠	
Flow Direc	tion: S	Drains I	nto:	BRBR-WU	S7		
Fed By:	Upland runoff and \	WET D.					
Bank Heigl	ht: _6"	Water Depth	: 0"		Width:6-20	<u>)'</u>	
Channel G	radient (%):2	Bank Sta	bility:	Poor			
Avg. Bank	Slope: Vertic	al 🗆 2:1	$\boxtimes$	3:1 🗆	4:1 or greater □	]	
Mesohabit	tat: % Run:	100 %	6 Riffle:	0	% Pool:	0	
Substrate:	Cobble UVeg UBedrock U	Gravel ⊠ Riprap □		Sand Concrete		ilt ⊠ ck □	
Channel Cl	haracteristics:	Natural 🗵	Artific	ial 🗆	Man-altered $\square$		
онwм:	Clear, natural line Changes in charac Shelving Vegetation matted Leaf litter disturbe Sediment depositi Water staining	ter of soil d down, bent, or a ed or washed awa	absent		Presence of litter and Destruction of terrestores of wrack line dedicated and sorting and sorting decour which the change in plane and sorting the change in plane and sorting	rial veg.	
Photos?	Upstream ⊠ D	ownstream 🗵					
	n to Traditional Na to the Bird River, a		/ay: _	Flows out	side of Study Area t	o BRBR-WUS7,	
Other Com	nments: Runs ac	ljacent to WET [	o. WUS	H is an er	osional feature of tl	he wetland.	

Project:	I-95 ETL Northbound	Extension	Date:	8/21/19	Stream ID:	WUS F	
Staff: M	M, AS	Flow Type:	Peren	nnial 🗆	Intermittent $\square$	Ephemeral 🗵	
Flow Direct	tion: S	Drains In	ito:	WET D			
Fed By: _B	RBR-WET22 and up	land runoff					
Bank Heigh	nt: 12-16"	Water Depth:	_0"		Width: _1'		
Channel Gr	radient (%): 1-2	Bank Stab	oility:	Poor			
Avg. Bank	Slope: Vertica	I □ 2:1 [	$\boxtimes$	3:1 🗆	4:1 or greater □	]	
Mesohabit	at: % Run: <u>1</u>	00 %	Riffle	: 0	% Pool:		
Substrate:	Cobble ⊠ Veg □ Bedrock □	Gravel □ Riprap □		San Concret		ilt ⊠ ck ⊠	
Channel Ch	naracteristics: N	atural 🗵	Artific	cial 🗆	Man-altered □		
OHWM:	Clear, natural line in Changes in character Shelving Vegetation matted Leaf litter disturbed Sediment deposition Water staining	er of soil down, bent, or a I or washed away	bsent		Presence of litter and Destruction of terrest Presence of wrack line Sediment sorting Scour Multiple observed/pre Abrupt change in plan	rial veg.	
Photos?	Upstream ⊠ Do	wnstream 🗵					
Connection the Bird Riv	n to Traditional Nav ver, a TNW.	igable Waterwa	ay:	Flows int	o WET D, which drai	ns to a tributary to	<u> </u>
Other Com	ments:						

Project:	I-95 ETL No	orthbound Ex	ktension	Date:	8/21/19	Stream ID:	WUS T	
Staff: N	лм, as	F	low Type:	Peren	nial $\square$	Intermittent $\square$	Ephemeral ⊠	
Flow Dire	ction: NW	I	Drains	Into:	BRBR-Wl	JS1		
Fed By: _	Upland and	l roadside r	unoff.					
Bank Heig	ht: 2-4'		Water Dept	th: <u>0"</u>		Width: _2'		
Channel G	iradient (%	<b>)</b> : <u>0-1</u>	Bank St	ability:	Moder	ate		
Avg. Bank	Slope:	Vertical	□ 2:1	L 🗵	3:1 🗆	4:1 or greater		
Mesohabi	itat: %	Run: <u>100</u>	)	% Riffle:	0	% Pool:	0	
Substrate	: Cobble Veg Bedrock	_ g 🗆			Sar Concre	_	silt ⊠ ck □	
Channel C	Characterist	ics: Nat	tural 🗆	Artific	ial 🗆	Man-altered $oxtimes$		
OHWM:	Changes Shelving Vegetation Leaf litte	in character on matted do r disturbed c t deposition	oressed on the of soil of soil own, bent, or washed aw	r absent		Presence of litter and Destruction of terrest Presence of wrack lin Sediment sorting Scour Multiple observed/pr Abrupt change in plan	crial veg. e e edicted flow events	
Photos?	Upstream	⊠ Dow	nstream 🛭	₫				
	on to Tradit er River, a T	_	able Water	way: _	Yes, flow	s to BRBR-WUS1, a	tributary to the	
Other Con	nments:	Adjacent t	o road (swa	ıle).				

Project:	-95 ETL Northbound	Extension Dat	e: <u>8/21/</u> 1	Stream ID:	BRBR-WUS2	
Staff: MN	Л, AS	Flow Type: Per	ennial $\square$	Intermittent 🗵	Ephemeral $\Box$	]
Flow Directi	ion: SW	Drains Into:	BRBR-W	/US1		
Fed By: U	pland runoff					
Bank Height	t: <u>6"</u>	Water Depth:	)"	Width:4-10	) <u>'</u>	
Channel Gra	adient (%): 2	Bank Stability	: Poor			
Avg. Bank S	lope: Vertica	1 □ 2:1 ⊠	3:1 🗆	4:1 or greater □	]	
Mesohabita	t: % Run: <u>1</u>	00 % Riff	fle: <u>0</u>	% Pool:	0	
Substrate:	Cobble	Gravel ⊠ Riprap □	Sa Concre		ilt ⊠ ck □	
Channel Cha	aracteristics: N	atural 🛛 Art	ficial $\square$	Man-altered $\square$		
OHWM:	Changes in characters Shelving	down, bent, or abser I or washed away		Presence of litter and Destruction of terrests Presence of wrack line Sediment sorting Scour Multiple observed/pre Abrupt change in plan	rial veg. e edicted flow events	
Photos?	Jpstream ⊠ Do	wnstream 🗵				
Connection Bird River, a	to Traditional Nav	igable Waterway:	Dischar	ges into BRBR-WUS1,	a tributary to the	
Other Comr	ments: Was pre	viously delineated ι	ınder the I	-95 ETL Section 100 p	ermit.	

Project:	I-95 ETL Northbound	Extension	Date:	8/21/19	Stream ID:	WUS J		
Staff: M	M, AS	Flow Type:	Peren	nial 🗆	Intermittent ⊠	Ephemeral $\square$		
Flow Direc	tion: SW	Drains I	nto:	BRBR-WU	JS1			
Fed By: _C	Originates at a cross	-culvert under I	I-95. Al	so fed by	roadside runoff.			
Bank Heigh	nt: <u>3-8'</u>	Water Depth	: 0-2	2"	Width:3-4'	·		
Channel Gi	radient (%): 2-3	Bank Sta	bility:	Poor				
Avg. Bank	<b>Slope:</b> Vertica	I □ 2:1	$\boxtimes$	3:1 □	4:1 or greater □	]		
Mesohabit	<b>at:</b> % Run: <u>9</u>	0 %	6 Riffle:	: 0	% Pool:			
Substrate:	Cobble ⊠ Veg □ Bedrock □	Gravel ⊠ Riprap □		San Concret	_	ilt ⊠ ck ⊠		
Channel Ch	naracteristics: N	latural $\square$	Artific	ial 🗆	Man-altered ⊠			
OHWM:	Clear, natural line in Changes in characters Shelving Vegetation matted Leaf litter disturbed Sediment deposition Water staining	er of soil down, bent, or a d or washed awa	ıbsent		Presence of litter and Destruction of terrest Presence of wrack line Sediment sorting Scour Multiple observed/preAbrupt change in plan	rial veg. e edicted flow events		
Photos?	Upstream ⊠ Do	wnstream 🗵						
Connection Bird River,	n to Traditional Nav a TNW.	igable Waterw	ay: _	Yes, flow	s into BRBR-WUS1, a	a tributary to the		
Other Comments: Segment of stream (swale) that exists between WUS K and BRBR-WUS1.								
Runs along	I-95 adjacent to roa	adway.						

Project:	I-95 ETL Northbound	Extension <b>D</b>	ate:	8/21/19	Stream ID:	WUS L	
Staff: N	1M, AS	Flow Type: P	ereni	nial $\square$	Intermittent 🗵	Ephemeral $\Box$	
Flow Direc	etion: SW	Drains Into	o: _	Continue	s outside of the Stu	ıdy Area	
Fed By:	WET G, groundwater	, and precipitation	n				
Bank Heig	ht: _4"	Water Depth:	0"		Width:2'		
Channel G	radient (%):1	Bank Stabil	lity:	Modera	ate		
Avg. Bank	Slope: Vertica	1 □ 2:1 □		3:1 🗆	4:1 or greater	$\boxtimes$	
Mesohabi	<b>tat:</b> % Run: <u>1</u>	00 % F	Riffle:	0	% Pool:	_0	
Substrate:	Cobble  Veg  Bedrock	Gravel □ Riprap □		San Concret	_	Silt ⊠ uck ⊠	
Channel C	haracteristics: N	atural 🛛 💢 A	rtifici	ial 🗆	Man-altered □		
OHWM:	Clear, natural line in Changes in characte Shelving Vegetation matted Leaf litter disturbed Sediment depositio Water staining	er of soil down, bent, or abs l or washed away			Presence of litter and Destruction of terres Presence of wrack lir Sediment sorting Scour Multiple observed/p Abrupt change in pla	trial veg. ne redicted flow events	
Photos?	Upstream ⊠ Do	wnstream 🗵					
	<b>n to Traditional Nav</b> I River, a TNW.	igable Waterway	<b>/</b> : _	Likely cor	nects to BRBR-WU	IS1, a tributary to	
Other Con	nments: Sparse cl	nannel of no vego	etatio	on.			

Project:	-95 ETL Northbound	Extension Date	: 8/21/1	9 Stream ID:	WUS K	
Staff: MN	л, AS	Flow Type: Pere	nnial 🗆	Intermittent $\square$	Ephemeral 🗵	]
Flow Directi	on: SW	Drains Into:	WUS J			
Fed By: Ru	unoff					
Bank Height	:: <u>2-6'</u>	Water Depth: 0	,,	Width:1-3'		
Channel Gra	adient (%): _ 3-4	Bank Stability	Poor			
Avg. Bank S	lope: Vertica	1 □ 2:1 ⊠	3:1 🗆	4:1 or greater $\Box$	]	
Mesohabita	t: % Run: <u>1</u> 0	00 % Riffl	e: <u>0</u>	% Pool:	0	
Substrate:	Cobble ⊠ Veg □ Bedrock □	Gravel ⊠ Riprap ⊠	Sa Concre		ilt ⊠ ck □	
Channel Cha	aracteristics: N	atural 🗆 Artif	icial 🗆	Man-altered ⊠		
OHWM:	Changes in characters Shelving	down, bent, or absent I or washed away		Presence of litter and Destruction of terresti Presence of wrack line Sediment sorting Scour Multiple observed/pre Abrupt change in plan	rial veg.	
Photos? (	Jpstream ⊠ Do	wnstream 🗵				
Connection TNW.	to Traditional Nav	igable Waterway:	Yes, flov	vs to WUS J, a tributa	ry to the Bird Rive	r, a
Other Comr	nents: Steep ch	annel north of culve	rt.			

Project:	I-95 ETL No	orthbound Extension	Date:	8/21/19	Stream ID:	WUS M			
Staff: _	MM, AS	Flow Type:	Peren	nial $\square$	Intermittent $\square$	Ephemeral 🗵	]		
Flow Dire	ection: NE	Drains	Into:	GPJR-WUS	52A				
Fed By:	Roadside ru	unoff, precipitation							
Bank Hei	ight: 1-3'	Water Dept	th: <u>0"</u>		Width:3'				
Channel	Gradient (%)	: 3 Bank St	tability:	Poor-mo	oderate				
Avg. Ban	k Slope:	Vertical □ 2:2	1 🗆	3:1 ⊠	4:1 or greater □	]			
Mesohal	oitat: %	Run: <u>100</u>	% Riffle:	: 0	% Pool:	0			
Substrate	e: Cobble Veg Bedrock	g 🗌 Riprap		Sand Concrete	_	ilt ⊠ ck ⊠			
Channel	Characterist	ics: Natural 🗆	Artific	ial 🗆	Man-altered ⊠				
OHWM:	Changes Shelving Vegetation Leaf litter	tural line impressed on the character of soil on matted down, bent, or disturbed or washed awas deposition aining	r absent	□	resence of litter and lestruction of terresting resence of wrack line ediment sorting cour fultiple observed/prebrupt change in plan	rial veg.			
Photos?	Upstream	□ Downstream    □							
	Connection to Traditional Navigable Waterway: Flows into GPJR-WUS2A, a tributary to the Gunpowder River, a TNW.								
Other Co	Other Comments: Stream only flows during periods of precipitation.								

Project:	I-95 ETL Northbound	Extension	Date:	8/21/19	Stream ID	: GPJR-WUS2A	
Staff:	MM, AS	Flow Type:	Peren	nial 🗆	Intermittent [	☐ Ephemeral ⊠	]
Flow Dire	ection: NE	Drains In	to:	GPJR-WU	JS1		
Fed By:	GPJR-WUS2B, WUS	M, and roadside	runof	f			
Bank Hei	ight: _3'	Water Depth:	0"		Width: _2	,	
Channel	Gradient (%): 1	Bank Stab	ility:	Poor			
Avg. Ban	k Slope: Vertica	nl □ 2:1 [	$\boxtimes$	3:1 🗆	4:1 or greater	· 🖂	
Mesohab	oitat: % Run: <u>1</u>	.00 %	Riffle	: 0	% Poo	l: <u>0</u>	
Substrate	e: Cobble   Veg   Bedrock	Gravel ⊠ Riprap □		Sar Concre		Silt ⊠ ∕luck □	
Channel	Characteristics: N	latural 🗆	Artific	cial 🗆	Man-altered		
онwм:	Clear, natural line i Changes in charact Shelving Vegetation matted Leaf litter disturbed Sediment deposition	er of soil down, bent, or ald d or washed away	bsent		Presence of litter and Destruction of terror Presence of wrack I Sediment sorting Scour Multiple observed/Abrupt change in p	estrial veg. ine predicted flow events	
Photos?	Upstream ⊠ Do	ownstream 🗵					
Connecti	ion to Traditional Nav	rigable Waterwa	ay: _	A tributa	ry to the Gunpow	der River, a TNW.	
Other Co	omments: GPJR-W	US2A is a roadsi	do sur	ala			
	ly delineated under th						
1 1 5 1 1 1 1 1 1 1	iy aciiilcatcu ulludi li	に ニシン ヒIL ひせしけし	ンロ・エひし	, perillic.			

Project: 1-95	ETL Northbound	Extension	Date:	8/21/19	Stream I	<b>D</b> : GPJR	-WUS2B	
Staff: MM, A	S	Flow Type:	Peren	nial $\square$	Intermittent	⊠ Eŗ	ohemeral	
Flow Direction:	. <u>N</u>	Drains	Into:	GPJR-WU	JS2A			
Fed By: BRBR	-WET1							
Bank Height:	12-18"	Water Dept	t <b>h:</b> 0"		Width: _	3-5'		
Channel Gradie	ent (%): 1-2	Bank St	ability:	Modera	ate			
Avg. Bank Slop	e: Vertica	al □ 2:1	L⊠	3:1 🗆	4:1 or great	er 🗆		
Mesohabitat:	% Run:9	00	% Riffle:	0	% Po	ol: <u>10</u>		
	Cobble 🗵 Veg 🗆 edrock 🗆		$\square$	San Concret	- <b>-</b>	Silt ☐ Muck ☐	]	
Channel Charac	cteristics: N	latural ⊠	Artific	ial 🗆	Man-altered			
Ch Sh Ve Le Se	ear, natural line i anges in charact elving getation matted af litter disturbe diment deposition ater staining	er of soil down, bent, or d or washed aw	r absent		Presence of litter Destruction of ter Presence of wract Sediment sorting Scour Multiple observed Abrupt change in	rrestrial veg k line d/predicted	flow event	
Photos? Upst	ream 🗵 Do	ownstream 🛭	₫					
Connection to the Gunpowder			way: _	GPJR-WU	S2B drains to G	PJR-WUS2	A, a tributa	ary to
Other Commer	its: Was pre	viously deline	ated und	der the I-9	95 ETL Section 1	00		
Permit as GPJR-	·WUS2.							

Project: I-95 ETL Northbound Extension Da	<b>te</b> : 8/21/19	Stream ID:	GPJR-WUS1, GPJF WUS1A	<b>{-</b>				
Staff: MM, AS Flow Type: Pe	rennial $\square$	Intermittent ⊠	Ephemeral $\Box$					
Flow Direction: N Drains Into:	: Culvert u	nder I-95						
Fed By: GPJR-WUS2A, WUS P, and roadside rur	noff							
Bank Height: 2-4' Water Depth: _	0"	Width:3-5'						
Channel Gradient (%): 1-2 Bank Stability: Moderate								
Avg. Bank Slope: Vertical $\square$ 2:1 $\boxtimes$ 3:1 $\square$ 4:1 or greater $\square$								
Mesohabitat:         % Run:         100         % Riffle:         0         % Pool:         0								
Substrate: Cobble ⊠ Gravel ⊠ Sand ⊠ Silt ⊠  Veg □ Riprap □ Concrete ⊠ Muck □  Bedrock □								
Channel Characteristics: Natural ☐ Art	tificial $\square$	Man-altered ⊠						
OHWM: Clear, natural line impressed on the bar Changes in character of soil Shelving Vegetation matted down, bent, or abse Leaf litter disturbed or washed away Sediment deposition Water staining	ent	Presence of litter and Destruction of terrest Presence of wrack line Sediment sorting Scour Multiple observed/pre Abrupt change in plan	rial veg.					
Photos? Upstream ⊠ Downstream ⊠								
Connection to Traditional Navigable Waterway: Stream is a tributary to the Gunpowder River, a TNW.								
Other Comments: The stream was originally delineated under the I-95 ETL Section 100 permit.								

Project: 1-95 ETL Northbound Extension Date	e: 8/21/19 Stream ID: GPJR-WUS1B
Staff: MM, AS Flow Type: Pere	ennial $\square$ Intermittent $oxtimes$ Ephemeral $oxtimes$
Flow Direction: N Drains Into:	GPJR-WUS1A
Fed By: Fed by GPJR-WET1	
Bank Height: 1-2' Water Depth: 0	Width: 2-5'
Channel Gradient (%): 1-2 Bank Stability	: Poor
Avg. Bank Slope: Vertical $\square$ 2:1 $\boxtimes$	3:1 $\square$ 4:1 or greater $\square$
Mesohabitat: % Run: 90 % Riff	le: <u>10</u> % Pool: <u>0</u>
Substrate: Cobble ⊠ Gravel ⊠ Veg □ Riprap □ Bedrock □	Sand ⊠ Silt ⊠ Concrete □ Muck □
Channel Characteristics: Natural ☐ Arti	ficial $\square$ Man-altered $oxtimes$
Clear, natural line impressed on the bank Changes in character of soil Shelving  Vegetation matted down, bent, or absent Leaf litter disturbed or washed away Sediment deposition  Water staining	<ul><li>□ Destruction of terrestrial veg.</li><li>□ Presence of wrack line</li><li>□ □</li></ul>
Photos? Upstream ⊠ Downstream ⊠	
Connection to Traditional Navigable Waterway:	Yes, a tributary to the Gunpowder River, a TNW.
	er exists. The stream has been partially impacted by er I-95 ETL Section 100 permit as part of GPJR-WUS1.

Project: _	I-95 ETL Northbound	Extension	Date:	8/21/19	Stream ID:	GPJR-WUS3	
Staff: M	M, AS	Flow Type:	Peren	nial 🗆	Intermittent 🗵	Ephemeral $\Box$	l
Flow Direct	tion: S	Drains	Into:	BRBR-WE	ET1		
Fed By: _ U	Jpland runoff and G	PJR-WUS10B					
Bank Heigh	nt: 10-18"	Water Dept	<b>h</b> : 0"		Width: 3'		
Channel Gr	radient (%): 2-3	Bank St	ability:	Poor			
Avg. Bank S	Slope: Vertica	I ⊠ 2:1		3:1 🗆	4:1 or greater [		
Mesohabit	<b>at:</b> % Run: <u>1</u>	00	% Riffle:	: 0	% Pool:	0	
Substrate:	Cobble ⊠ Veg □ Bedrock □			Sar Concre	_	Silt ⊠ uck □	
Channel Ch	naracteristics: N	atural 🗵	Artific	ial 🗆	Man-altered ⊠		
OHWM:	Clear, natural line in Changes in character Shelving Vegetation matted Leaf litter disturbed Sediment deposition Water staining	er of soil down, bent, or d or washed aw	absent		Presence of litter and Destruction of terres Presence of wrack lin Sediment sorting Scour Multiple observed/pa Abrupt change in pla	trial veg. e redicted flow events	
Photos?	Upstream ⊠ Do	wnstream 🗵					
	n <b>to Traditional Nav</b> powder River, a TN\	•	way: _	Flows int	o BRBR-WET1, whic	ch drains to a tribut	ary
Other Com	ments: Very cha	ınnelized;					
Previously	delineated under I-9	95 ETL Section	100 pei	rmit.			

Project:	I-95 ETL Northbound	Extension	Date:	8/21/19	Stream ID:	GPJR-WUS10B	
Staff: N	ИМ, AS	Flow Type:	Peren	nial 🗆	Intermittent 🗵	Ephemeral $\Box$	
Flow Dire	ction: W	Drains In	ito:	GPJR-WU	JS3		
Fed By: _	E&S outfall (Under c	onstruction) and	d storr	nwater			
Bank Heig	ht: <u>4"</u>	Water Depth:	0"		<b>Width:</b> 5-11	<u>L'</u>	
Channel G	Gradient (%): 2	Bank Stab	ility:	Poor			
Avg. Bank	Slope: Vertica	I ⊠ 2:1 [		3:1 □	4:1 or greater $\Box$	]	
Mesohabi	tat: % Run: <u>1</u>	00 %	Riffle	: 0	% Pool:	0	
Substrate	: Cobble □ Veg □ Bedrock □	Gravel ⊠ Riprap □		Sar Concre	- <del>-</del>	ilt □ ck □	
Channel C	Characteristics: N	atural 🗆	Artific	cial 🗆	Man-altered ⊠		
онwм:	Clear, natural line i Changes in charact Shelving Vegetation matted Leaf litter disturbed Sediment deposition Water staining	er of soil down, bent, or al d or washed away	bsent		Presence of litter and Destruction of terrest Presence of wrack line Sediment sorting Scour Multiple observed/pre Abrupt change in plan	rial veg.	
Photos?	Upstream ⊠ Do	wnstream 🗵					
	on to Traditional Naver River, a TNW.	igable Waterwa	ay: _	Flows int	o GPJR-WUS3, a trib	utary to the	
Other Cor	mments: Previous	ily delineated ur	nder I-	95 ETL Se	ction 100 permit.		
The stream	m has been partially i	impacted by cor	nstruct	tion activi	ties		

<b>Project:</b> I-95 ETL Northbound Extension	Date:	8/21/19	Stream ID:	WUS P			
Staff: MM, AS Flow Typ	<b>oe:</b> Peren	nial 🗆	Intermittent 🗵	Ephemeral [	$\boxtimes$		
Flow Direction: SW Dr	ains Into:	GPJR-WUS1	L				
Fed By: Roadside runoff and WUS O							
Bank Height: 2' Water	<b>Depth:</b> 0"		Width: 4'				
Channel Gradient (%): 2 Bar	nk Stability:	Concrete					
Avg. Bank Slope: Vertical	2:1 🗵	3:1 🗆	4:1 or greater □	]			
Mesohabitat: % Run: 100	% Riffle	: 0	% Pool:	0			
Substrate: Cobble ☐ Grave  Veg ☐ Ripra  Bedrock ☐	_	Sand Concrete	☐ Si ☑ Mud	ilt □ ck □			
Channel Characteristics: Natural □	] Artific	cial 🗵	Man-altered $\square$				
OHWM: Clear, natural line impressed Changes in character of soil Shelving Vegetation matted down, betteaf litter disturbed or washed Sediment deposition Water staining	nt, or absent	<ul> <li>□ De</li> <li>□ Pro</li> <li>□ Se</li> <li>□ Sco</li> <li>□ Mo</li> </ul>	esence of litter and struction of terrestres of wrack line diment sorting our ultiple observed/preserupt change in plan	rial veg. e edicted flow events			
<b>Photos?</b> Upstream ⊠ Downstrear	n 🗵						
<b>Connection to Traditional Navigable W</b> Gunpowder River, a TNW.	aterway: _	Flows to G	PJR-WUS1, a tribu	tary to the			
Other Comments: Currently being p	iped under a	constructio	n access. WUS P is	s intermittent			
downstream of WUS O.							

Project: I-95 ETL Northbound Extension Date: 8/21/19 Stream ID: WUS I	
Staff: MM, AS Flow Type: Perennial  Intermittent  Ephemeral	☒
Flow Direction: SW Drains Into: BRIS-WET3	
Fed By: Runoff	
Bank Height: 12-18" Water Depth: 0" Width: 1-2'	
Channel Gradient (%): 2-3 Bank Stability: Poor	
Avg. Bank Slope: Vertical $\square$ 2:1 $\boxtimes$ 3:1 $\square$ 4:1 or greater $\square$	
Mesohabitat:         % Run:         95         % Riffle:         5         % Pool:         0	
Substrate:       Cobble       □       Gravel       □       Sand       □       Silt       □         Veg       □       Riprap       □       Concrete       □       Muck       □         Bedrock       □	
Channel Characteristics:   Natural $\square$ Artificial $\square$ Man-altered $\boxtimes$	
OHWM:  Clear, natural line impressed on the bank Changes in character of soil Destruction of terrestrial veg.  Shelving Vegetation matted down, bent, or absent Leaf litter disturbed or washed away Sediment deposition Water staining  Clear, natural line impressed on the bank Destruction of terrestrial veg.  Presence of wrack line Sediment sorting Scour Multiple observed/predicted flow events Abrupt change in plant community	
Photos? Upstream ⊠ Downstream ⊠	
Connection to Traditional Navigable Waterway: Flows to BRIS-WET3, which is likely connected BRBR-WET22 through groundwater, and ultimately drains to a tributary to the Bird River, a TNW.	to
Other Comments: On May 29, 2020, USACE determined that this resource is a non-jurisdictional roadside ditch.	al

Project: I-95 ETL Northbour	d Extension Date:	8/21/19	Stream ID:	WUS O	
Staff: MM, AS	Flow Type: Peren	nial $\square$	Intermittent 🗵	Ephemeral $\Box$	
Flow Direction: W	Drains Into:	WUS P			
Fed By: Upland runoff and	WET J, which has since	been impac	cted by constructio	n.	
Bank Height: 6"	Water Depth: 0"		Width: 2-3'		
Channel Gradient (%): 4	Bank Stability:	Poor			
Avg. Bank Slope: Vertice	cal ⊠ 2:1 ⊠	3:1 🗆	4:1 or greater $\Box$		
Mesohabitat: % Run: _	100 % Riffle	: 0	% Pool:	0	
Substrate: Cobble	Gravel ⊠ Riprap □	Sand Concrete	⊠ Si □ Muc		
Channel Characteristics:	Natural ⊠ Artific	cial 🗆	Man-altered $\square$		
Changes in character Shelving Vegetation matter Leaf litter disturb Sediment deposit Water staining	d down, bent, or absent ed or washed away	□ De  ⊠ Pr  □ Se  □ Sc  □ M	esence of litter and obstruction of terrestriction of terrestriction of terrestrictions of which is essence of wrack line diment sorting our ultiple observed/preproupt change in plant	ial veg. dicted flow events	
•		ela atara	MAIC Door Street	to the Court of	
Connection to Traditional Na River, a TNW.	avigabie waterway: _	riows into	WUS P, a tributary	to the Gunpowder	
Other Comments:					

# APPENDIX D PHOTO DOCUMENTATION



## **Northbound Wetlands and Waters**



Photo 1: BRBR-WET21



Photo 2: BRBR-WET21 – UPLAND





Photo 3: WET D



Photo 4: BRBR-WET22 PSS





Photo 5: BRBR-WET22 PEM



Photo 6: WET F





Photo 7: WET D, BRBR-WET22, F - UPLAND



Photo 8: WET G





Photo 9: WET H



Photo 10: WET G, H – UPLAND





Photo 11: WET I



Photo 12: WET J





Photo 13: WET K



Photo 14: WET J, K – UPLAND





Photo 15: BRBR-WUS1 - UPSTREAM



Photo 16: WUS Q - DOWNSTREAM





Photo 17: WUS R - UPSTREAM



Photo 18: BRBR-WUS8 - DOWNSTREAM





Photo 19: WUS S - UPSTREAM



Photo 20: BRBR-WUS7 - UPSTREAM





Photo 21: WUS G - DOWNSTREAM



Photo 22: WUS H - UPSTREAM





Photo 23: WUS F - DOWNSTREAM



Photo 24: WUS I - UPSTREAM





Photo 25: BRBR-WUS7 - DOWNSTREAM



Photo 26: WUS T – DOWNSTREAM





Photo 27: BRBR-WUS1 – UPSTREAM



Photo 28: BRBR-WUS2 - UPSTREAM





Photo 29: WUS J - DOWNSTREAM



Photo 30: WUS L - DOWNSTREAM





Photo 31: WUS K - DOWNSTREAM



Photo 32: WUS M - DOWNSTREAM





Photo 33: GPJR-WUS2A – UPSTREAM



Photo 34: GPJR-WUS2A- DOWNSTREAM





Photo 35: GPJR-WUS1 – DOWNSTREAM



Photo 36: GPJR-WUS3 – UPSTREAM





Photo 37: GPJR-WUS10B UPSTREAM



Photo 38: WUS P – UPSTREAM





Photo 39: GPJR-WUS4 – DOWNSTREAM



Photo 40: WUS O - DOWNSTREAM



# **Southbound Wetlands and Waters**



Photo 41: WMHG-WET10



Photo 42: BRBR-WET 5





Photo 43: BRBR-WET6



Photo 44: BRBR-WET98





Photo 45: BRBR-WET99



Photo 46: GPJR-WET4





Photo 47: WET95A



Photo 48: WET96A





Photo 49: WMHG-WUS9 – DOWNSTREAM



Photo 50: BRBR-WUS11 - UPSTREAM





Photo 51: GPJR-WUS13A - UPSTREAM



Photo 52: BRBR-WUS9 - DOWNSTREAM





Photo 53: BRBR-WUS98 – DOWNSTREAM



Photo 54: BRBR-WUS99 - DOWNSTREAM





Photo 55: GPJR-WUS4 - UPSTREAM



Photo 56: GPJR-WUS1 – UPSTREAM



# APPENDIX E PRELIMINARY JURISDICTIONAL DETERMINATION MINUTES





## **Meeting Minutes**

I-95 Express Toll Lanes Northbound Extension Project – Section 100 Preliminary JD of Revised Northbound Wetland Delineation Friday, May 29, 2020 8:30 am - 12:30 pm

### Attendees:

#### Name

Erin Markel, JMT/GEC Andrew Beaudet, USACE Gillian Rines, McCormick Taylor/MDE Kyle Spendiff, WSP/MDTA

# E-mail address

emarkel@jmt.com Andrew.d.beaudet@usace.army.mil glrines@mccormicktaylor.com kyle.spendiff@wsp.com

#### Introduction:

- 1. JMT began the meeting by discussing the history of the project and its delineations.
  - 1.1 In 2017, JMT and Wallace Montgomery were tasked with delineating the study area of KH-3009, using the 2004 Section 100 wetland delineation as a starting point. Wallace Montgomery delineated the southbound side, while JMT delineated the northbound side. After the fieldwork was completed, JMT was informed that the area south of New Forge Road was already permitted under the Section 100 permit, and that the 2004 delineation used in the Section 100 permit should continue to be shown on plans. JMT then archived the 2017 data from Section 100.
  - 1.2 As design for KH-3009 progressed, it became apparent that portions of the wetland delineation that overlapped with previous Section 100 improvements were outdated, which caused problems with E&S design. Specifically, BRBR-WET20 and BRBR-WUS20 had been impacted by the KH-1403 Section 100 contract and lost hydrology as a result. Continuing to show these resources on the plans resulted in the designers needing to design maintenance of streamflow for features that no longer existed.
  - 1.3 JMT unarchived the 2017 Section 100 delineation data and completed a delineation report. To meet JMT's current standards, additional fieldwork was completed in 2019 to complete stream datasheets and take stream photos.
  - 1.4 After discussion with MDTA, JMT updated the KH-3009 plans south of New Forge Road to show the revised delineation, so that PS&E level design appropriate to the current conditions could proceed. MDTA and JMT reached out to the agencies to inform them of the new delineation, share the completed wetland report, and to ask for guidance.

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- 2. Ms. Markel summarized recent permit discussions regarding the revised delineation.
  - 2.1 MDE is currently considering the best way to permit the impacts to updated resources; options include modifying the Section 100 permit, which is now 15 years old, or adding the Section 100 impacts of KH-3009 to the ETL Section 200 Phase I permit, which authorizes the remainder of KH-3009's impacts. Both permits need to be modified. The Section 100 permit needs to be modified upon completion of Section 100 impacts to reflect the updated, final design of all contracts, while the Section 200 Phase I permit needs to be modified due to proposed impacts to new resources. MDE has requested estimated Section 100 impact totals using the new delineation and will make a decision once they have reviewed those numbers. Andy Beaudet of USACE requested to be invited to future Section 100 permit discussions.
    - 2.1.1 Following the meeting, MDE and USACE determined that impacts from the Section 100 portion of KH-3009 will be moved to the Section 200 Phase I permit.
  - 2.2 MDE has directed that the Section 100 noise walls, KH-3013 and KH-3016, continue using the original Section 100 delineation performed in 2004 instead of the delineation performed in 2017, since construction has already been completed. In addition, the southbound Section 100 improvements are not scheduled to occur in the foreseeable future. Therefore, the field review focused on resources that will be impacted by KH-3009 and which have changed since the original Section 100 delineation.
    - 2.2.1 Following the meeting, MDE and USACE determined that impacts from the KH-3013 and KH-3016 would be moved to the Section 200 Phase I permit, and that impacts will be calculated using the updated delineation. However, a preliminary JD of the southbound resources will not be needed; MDE and USACE will review the delineation in the KH-3013 area as part of the JPA review. The preliminary JD of the KH-3009 resources also included the resources impacted by KH-3016.
- 3. Ms. Markel discussed the changes between the 2004 delineation and the 2017 delineation. These changes are also noted in the attached resource summary table.
  - 3.1 BRBR-WET20 and BRBR-WUS20, located in the vicinity of the completed KH-1403 improvements, have lost hydrology due to topography changes and construction of a stormwater management pond. BRBR-WET21, located immediately downstream, has decreased in size, likely due to both loss of hydrology and a downstream headcut. These three resources were originally delineated during construction of KH-1403, after the Section 100 permit was issued; impacts to the resources were included in the Section 100 quarterly updates.
  - 3.2 BRBR-WET22 was also delineated during construction of KH-1403. It was largely located outside of the LOD for that contract, with impacts proposed only to its buffer, so a conservative delineation consisting of only the boundary closest to the road was completed at that time. The 2017 delineation mapped this wetland in more detail, resulting in extensive changes to its boundary.

- 3.3 Minor changes in extents occurred along several streams, possibly due to stream erosion over time, with the 2017 boundaries considered to be more accurate. These streams consisted of BRBR-WUS1, BRBR-WUS1, GPJR-WUS1, and GPJR-WUS4 (later renamed GPJR-WUS1B).
- 3.4 Stream flow classifications for the following streams changed between delineations: GPJR-WUS2A and GPJR-WUS2B (originally permitted as GPJR-WUS2, but consists of two separate streams that have since been renamed to disambiguate), GPJR-WUS1, and GPJR-WUS3. In the 2004 delineation, GPJR-WUS1 and GPJR-WUS1 were classified as intermittent and GPJR-WUS3 were classified as perennial; in the 2017 delineation all were classified as ephemeral.
- 3.5 New resources were delineated in several locations, consisting mostly of streams located in roadside ditches and new wetlands. The addition of new wetlands was likely due to the introduction of the Regional Supplement to the USACE Wetland Delineation Manual since the original delineations were performed. All wetlands and streams named with single letters (e.g., WUS F or WET D) are new resources.
- 3.6 BRIS-WET3 was considered non-jurisdictional during the 2005 Section 100 JD, but was delineated again in 2017. It appears to have been constructed as a stormwater management feature.
- 4. JMT noted that delineation of the median was not included in the scope of the 2017 field efforts, and that the 2004 delineation is continuing to be shown in that location.
- 5. The group then travelled to the field to review the resources.

#### **Resource Field Review:**

- The Section 100 northbound resources and field review discussions that took place during the meeting are summarized in the attached Preliminary JD Summary Table, including whether the resources will be impacted by KH-3009, their classification under the 2017 delineation, whether they were field reviewed, and any agency comments about the delineation.
- 2. The following determinations were made:
  - 2.1 WUS I was determined to be a non-jurisdictional roadside ditch.
  - 2.2 BRIS-WET3 was previously considered non-jurisdictional during the Section 100 JD, but was redelineated in 2017. It appears to have been thrown out in the original JD due to being constructed as a stormwater management feature. USACE and MDE requested that MDTA provide records confirming the wetland was constructed as a stormwater management feature; if so, it will continue to be considered non-jurisdictional.
    - 2.2.1 Following the meeting, MDTA determined that the 2004 wetland delineation report states that BRIS-WET3 was constructed as a stormwater feature.
    - 2.2.2 Following the meeting, MDE and USACE determined that they would not take jurisdiction over BRIS-WET3.

- 2.3 MDE and USACE determined that GPJR-WUS10B, GPJR-WUS1, GPJR-WUS2B, and GPJR-WUS3 should be reclassified as intermittent streams. However, a small portion of GPJR-WUS1 is an ephemeral concrete ditch, and will be renamed as GPJR-WUS1A. GPJR-WUS2A will continue to be classified as ephemeral.
  - 2.3.1 Following the meeting, it was determined that the preliminary JD should be revised to reflect pre-KH-3016 conditions; therefore, GPJR-WUS1A was classified as intermittent.
- 2.4 Several resources were impacted by the construction of the KH-3016 noise wall in the interim between the 2017 delineation and the field review. GPJR-WET1, WET J, and WET K no longer exist. Ephemeral GPJR-WUS4 and WUS O, which would previously have been considered jurisdictional due to their conveyance of wetland hydrology, are not jurisdictional to USACE under the current circumstances. Of these resources, only GPJR-WUS4 would be impacted by KH-3009.
  - 2.4.1 MDE stated they wish for the wetlands to remain in the delineation to reflect pre-KH-3016 conditions.
  - 2.4.2 Following the field meeting, JMT realized that GPJR-WUS4 was delineated in 2004 as part of GPJR-WUS1. The GPJR-WUS4 label used in 2017 was an error; a separate GPJR-WUS4 is located adjacent to southbound I-95. JMT is renaming the GPJR-WUS4 adjacent to northbound as GPJR-WUS1B to disambiguate it from the rest of GPJR-WUS1.
  - 2.4.3 Following the meeting, it was determined that the preliminary JD should be revised to reflect pre-KH-3016 conditions; therefore, GPJR-WUS1B, WUS O, and WUS P downstream of its confluence with WUS O, are considered intermittent. In addition, those streams as well as GPJR-WET1 and WET J will be regulated by both MDE and USACE. WET K is considered isolated by USACE and will only be regulated by MDE.
- 2.5 The delineated boundaries and classifications of all other field-reviewed resources were confirmed.
- 3. A field visit was also made to WP001, a small wetland delineated in Section 200 Phase I adjacent to Raphel Road. This wetland was delineated after the Section 200 Phase I permit was issued. MDE will take jurisdiction over this wetland, while USACE is considering the wetland to be isolated and therefore not jurisdictional.
- 4. MDE requested that cross-culverts be added to delineation maps.
- 5. MDE noted that several geotechnical borings had not been backfilled. MDTA will direct contractors to backfill the boring holes.

#### **Action Items:**

- 1. MDTA to look for evidence that BRIS-WET3 is constructed SWM.
- 2. JMT to add cross culverts to the delineation maps and impact plates.
- 3. MDTA to direct contractors to backfill geotechnical boring holes.

The above represents a true and accurate account of the discussion during this meeting to the best of my knowledge. If there are any conflicts, misrepresentations, or omissions with the above statements, please contact

Copy: Attendees, Project File

Attachments: Section 100 Revised Delineation Preliminary JD Summary Table, 2017 Wetland Delineation Maps,

Revised 2017 Wetland Delineation Maps

the undersigned within 7 days of this date.

Section 100 Revised Delineation Northbound Preliminary JD Summary Table										
2017 Report Map No.	Resource	Impacted by KH- 3009?	2017 Classification	Change From Previous Delineation	Field Reviewed During 2020 Meeting?		Notes			
NA	BRBR-WET20	No*	No Longer Exists	Impacted by KH-1403 and no longer exists	Yes	USACE and MDE concurred that resource no longer exists	Originally delineated during construction of KH-1403 after Section 100 permit was issued.			
NA	BRBR-WUS20	No*	No Longer Exists	Impacted by KH-1403 and no longer exists	Yes		Originally delineated during construction of KH-1403 after Section 100 permit was issued.			
2	BRBR-WET21	No	I PSS	Decreased in size due to impacts from KH-1403 and a headcut	Yes	USACE and MDE concurred with 2017 delineation	Originally delineated during construction of KH-1403 after Section 100 permit was issued.			
2	WUS Q	No	l Enhemeral	New resource; previously delineated as part of BRBR-WET21	No					
2	WUS R	No	Ephemeral	New resource	No					
2,3	BRBR-WUS1	Yes	Perennial	Slight change in extents between WET G and BRBR-WUS2	Yes	USACE and MDE concurred with 2017 delineation				
2	BRBR-WUS8	Yes	Perennial	Slight change in extents near culvert	Yes	USACE and MDE concurred with 2017 delineation				
2	WUS S	No	Intermittent	New resource	No					
2	BRBR-WET22	Yes	I PEM	Change in extents - smaller in some areas and larger in others	Yes	USACE and MDE concurred with 2017 delineation	Originally delineated during construction of KH-1403 after Section 100 permit was issued; at that time only buffer impacts were proposed, so the delineation did not extend further than the immediate shoulder of the road			
2	WUS F	No	Ephemeral	New resource	No					
2	WET D	No	PFO	New resource	No					
2	WUS G	No	Ephemeral	New resource	No					
2	WUS H	No	Ephemeral	New resource	No					
3	BRBR-WET22	Yes	PSS	Newly delineated/expansion	Yes	USACE and MDE concurred with 2017 delineation	PSS portion of BRBR WET22 is an expansion of the previously delineated wetland			
3	BRIS-WET3	Yes	I PFIVI	Previously not jurisdictional, due to being built as a SWM BMP	Yes	MDE and USACE determined that this resource is non-jurisdictional	The 2004 wetland delineation report states BRIS-WET3 was created as stormwater management			
3	WUS I	Yes	Ephemeral	New resource	Yes	USACE ruled a non- jurisdictional roadside ditch				
3	WET F	Yes	PEM	New resource	Yes	USACE and MDE concurred with 2017 delineation				
3	BRBR-WUS7	No	Perennial	No changes	No					
3	WUS T	No	Ephemeral	New resource	No					
3	BRBR-WUS2	No	Ephemeral	No changes	No					
NA	BRBR-WET10	No		Outside Study Area	No					
NA	BRBR-WET11	No		Outside Study Area	No					
NA	BRBR-WUS12	No	None	Outside Study Area	No					
3	WUS J	Yes	Intermittent	New resource	Yes	USACE and MDE concurred with 2017 delineation				
4	WUS K	Yes	Ephemeral	New resource	Yes	USACE and MDE concurred with 2017 delineation				

Section 100 Revised Delineation Northbound Preliminary JD Summary Table										
2017 Report		Impacted by KH-			Field Reviewed During					
Map No.	Resource	3009?		Change From Previous Delineation	2020 Meeting?	Agency Comments	Notes			
4	WET G	No	PFO	New resource	No					
4	WET H	Yes	PEM	New resource	Yes	USACE and MDE concurred with 2017 delineation				
4	WUS M	Yes	Ephemeral	New resource	Yes	USACE and MDE concurred with 2017 delineation				
4	WET I	No	PFO	New resource	No					
4,5	BRBR-WET 1	Yes	PFO	No changes	No					
5	GPJR-WUS2A	Yes	Ephemeral	Previously intermittent	Yes	USACE and MDE concurred with 2017 delineation				
5	GPJR-WUS2B	Yes	Ephemeral	Previously intermittent	Yes	USACE and MDE reclassified as an intermittent stream				
5	GPJR-WUS1, GPJR- WUS1A	Yes	Ephemeral	Previously intermittent; slight changes in extent between BRBR-WET1 and GPJR-WUS4	Yes	USACE and MDE reclassified as an intermittent stream				
5	GPJR-WUS3	No	Ephemeral	Previously perennial, slight change in extents	Yes	USACE and MDE reclassified as an intermittent stream				
5	GPJR-WUS4 (now renamed GPJR- WUS1B)	Yes	Ephemeral	Previously intermittent, slight change in extents	Yes	USACE and MDE reclassified as an intermittent stream				
5	GPJR-WUS10B	No	Ephemeral	Listed in permit as "classification type not available"	Yes	USACE and MDE reclassified as an intermittent stream				
5	WUS O	Yes	Ephemeral	New resource	Yes	USACE and MDE reclassified as an intermittent stream				
5	GPJR-WET1	No	PFO	No changes	Yes	USACE and MDE concurred with 2017 delineation				
5	WET J	No	PFO	New resource	Yes	USACE and MDE concurred with 2017 delineation				
5,6	WUS P	Yes	Ephemeral	New resource	Yes	USACE and MDE reclassified as an intermittent stream downstream of its confluence with WUS O				
6 *Resource	WET K	No ov the KH-3009 LOD i	PEM/PUB f the resource contin	New resource ued to exist.	Yes	USACE and MDE concurred with 2017 delineation, but USACE considers the wetland to be isolated.				

