

MEMORANDUM

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Date:	March 2, 2018
To:	William Pines- MDTA
From:	Ed Tinney
CC:	James Harkness, Serena Liu, Peter Mattejat, Pam McNicholas, Don MacLean,
	Lauren Waesche- MDTA; Mitch Scott & Greg O'Hare- RK&K
Re:	I-95 5 th Lane Widening from MD 152 to MD 24 – Natural Resource Inventory (Revised)

Rummel Klepper & Kahl environmental scientists conducted a Natural Resources Inventory (NRI), including wetland delineation, forest stand characterization and tree inventory on behalf of the Maryland Transportation Authority (MDTA) along the I-95 corridor from MD 152 to MD 24 from April to July 2017. The project will add a 5th lane to northbound I-95 beginning at the gore of the northbound MD 152 on-ramp and ending where the two farthest outside lanes merge onto the exit ramps to MD 24. The 5th lane will be an extension of the MD 152 northbound on-ramp to MD 24. The 5th lane will be an extension of the MD 152 northbound on-ramp to MD 24.

Nineteen wetland features, 27 Waters of the US, 10 forest stands, six hedgerows and two reforestation areas were identified within the project study area. A Pre-Application field review was conducted on December 20, 2017 with Maryland Department of the Environment (MDE) and US Army Corps of Engineers (USACE) staff to verify the identified wetland/waters features. Mapping of the project area is attached in **Appendix A, Figure 1**.

BACKGROUND INFORMATION

RK&K environmental scientists conducted a desktop investigation of mapped information, prior to beginning the field investigation. The desktop investigation of the mapped information identified site topography, 100-year floodplain, vegetative cover, non-tidal waters and wetlands and their associated buffers, and hydric and highly erodible soils. Mapped resources reviewed for this project included:

- The United States Department of Agriculture, Natural Resource Conservation Service (USDA-NRCS) Web Soil Survey (WSS) for Harford County, Maryland
- The Eastern Shore Regional GIS Cooperative (ESRGC) LIDAR (2-foot contours)
- Federal Emergency Management Agency (FEMA) GIS data
- National Wetlands Inventory (NWI) GIS data
- Maryland Department of Natural Resources Wetlands and Waters GIS data

A letter requesting information on historic resources was sent to the Maryland Historical Trust (MHT) on July 25, 2017. Letters requesting information on the presence of rare, threatened, or endangered species, and fisheries resources, were also sent to the Maryland Department of Natural Resources Project Review Division (MDNR-PRD) and Wildlife and Heritage Section (MDNR-WH) on July 25, 2017.

A response was received from MHT on August 22, 2017 stating there are no historic properties affected by the project. MDNR-PRD sent a response letter on September 13, 2017, stating that the project will impact Winter's Run, which is classified as a Use I-P stream, and no instream work is allowed between February 15th and June 15th. A response letter was received from MDNR-WHS on August 22, 2017, stating that no State or Federal records exist for listed RTE species within the project area. An Official Species List and Online Certification Letter were received from the U.S. Fish and Wildlife Service (USFWS) on February 5, 2018 indicated that there are no Federal endangered or threatened species records within the project study area. Agency Correspondence documents can be found in **Appendix F**.

Desktop investigation results are summarized below:

Geology and Topography

The project study area is located in the Piedmont Plateau physiographic province, within the Perry Hall Upland District of Harford County, which is characterized by a transition between crystalline Piedmont and unconsolidated Coast Plain. Many hilltops are capped by Cretaceous gravels and sediments that thicken to the southeast, and rivers flow across the region in steep-walled valleys incised into crystalline rock. Elevation ranges from 30 to 180 feet above sea level, (**Appendix A, Figure 5**).

Soils

The USDA-NRCS Web Soil Survey for Harford County, Maryland identified 26 mapped soil units within the project study area, as shown in **Appendix A**, **Figure 4**, with three hydric soil units, one predominately hydric soil unit, seven predominately non-hydric soil units and fifteen non-hydric soil units identified. Seventeen highly erodible soils (K-factor ≥ 0.35) are mapped within the study area (**Table 1**).

Table 1. Mapped Solis							
Map Unit Symbol	Map Unit Name	K-Factor*	Hydric Rating**	Hydrologic Soil Group	Drainage Class		
Av	Alluvial land	0.43	100	D	Poorly drained		
BeB	Beltsville silt loam, 2 to 5 percent slopes	0.37	5	С	Moderately well drained		
BeC	Beltsville silt loam, 5 to 10 percent slopes	0.43	0	С	Moderately well drained		
ChB2	Chillum silt loam, 2 to 5 percent slopes, moderately eroded	0.32	0	С	Well drained		
CkC2	Chillum-Neshaminy silt loams, 5 to 10 percent slopes, moderately eroded	0.49	0	В	Well drained		

Table 1: Mapped Soils

Map Unit Symbol	Map Unit Name	K-Factor*	Hydric Rating**	Hydrologic Soil Group	Drainage Class
Cu	Codorus silt loam	0.32	15	С	Moderately well drained
Cv	Comus silt loam	0.37	5	В	Well drained
DcA	Delanco silt loam, 0 to 3 percent slopes	0.37	0	С	Moderately well drained
DcB	Delanco silt loam, 3 to 8 percent slopes	0.37	0	С	Moderately well drained
En	Elkton silt loam	0.43	95	C/D	Poorly drained
EsB2	Elsinboro loam, 2 to 5 percent slopes, moderately eroded	0.49	0	В	Well drained
EsC2	Elsinboro loam, 5 to 10 percent slopes, moderately eroded	0.49	0	В	Well drained
GcC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	0.32	0	В	Well drained
GcD3	Glenelg loam, 15 to 25 percent slopes, severely eroded	0.32	0	В	Well drained
JpC	Joppa gravelly sandy loam, 5 to 10 percent slopes	0.10	0	А	Well drained
КрА	Keyport silt loam, 0 to 2 percent slopes	0.49	5	D	Moderately well drained
KpB	Keyport silt loam, 2 to 5 percent slopes	0.49	5	D	Moderately well drained
KrA	Kinkora silt loam, 0 to 3 percent slopes	0.43	100	C/D	Poorly drained
KrB	Kinkora silt loam, 3 to 8 percent slopes	0.43	100	C/D	Poorly drained
LgC3	Legore silty clay loam, 8 to 15 percent slopes, severely eroded	0.37	0	В	Well drained
LgD3	Legore silty clay loam, 15 to 25 percent slopes, severely eroded	0.37	0	В	Well drained
LyB	Loamy and clayey land, 0 to 5 percent slopes	0.28	0	С	Moderately well drained
LyD	Loamy and clayey land, 5 to 15 percent slopes	0.28	0	С	Moderately well drained
MlB	Mattapex silt loam, 2 to 5 percent slopes, Northern Coastal Plain	0.49	5	С	Moderately well drained
SIB2	Sassafras loam, 2 to 5 percent slopes	0.32	5	В	Well drained
SIC2	Sassafras loam, 5 to 10 percent slopes	0.32	0	В	Well drained

*Erodibility Coefficient – Value assigned to soil types by NRCS. K > 0.35 are considered to be highly erodible soils

**Hydric Rating – Value is based on the percentage of hydric soils within the soil type. Non-hydric soils have a value of 0, predominantly non-hydric soils have a value between 0 and 33, partially hydric soils have a value between 33 and 66, predominantly hydric soils have a value between 66 and 99, and hydric soils have a value of 100.

Wetlands and Waters of the United States

One wetland is located within the study area according to Maryland Department of Natural Resources (DNR) GIS mapping and this wetland was identified as Winters Run during the field delineation. National Wetland Inventory (NWI) GIS mapping did not identify any wetlands within the study area. DNR and NWI GIS mapping both identified two waterways that were delineated during the field review. DNR and NWI wetland and waterway GIS mapping can be found in **Appendix A, Figure 3**.

Chesapeake Bay Critical Area and 100 Year Floodplain

The study area does not impact the Chesapeake Bay Critical Area (CBCA), but does fall within the 100-year floodplain of Winter's Run according to CBCA GIS data and Federal Emergency Management Agency (FEMA) GIS data for Harford County, respectively (**Appendix A, Figure 3**).

FOREST STAND CHARACTERIZATION AND TREE SURVEY- Methods

The investigation methods employed for this forest stand characterization were based on the State Forest Conservation Technical Manual, Third Edition, 1997. Maryland DNR defines a forest as "a biological community dominated by trees and other woody plants covering a land area of 10,000 square feet or greater", and not less than 35 feet in width. Forest includes (1) areas that have at least 100 trees per acre with at least 50% of those having a two-inch diameter measured at 4.5 feet above the ground, and (2) forest areas that have been cut but not cleared."

A characterization of forest types and overall conditions was completed for the study area using a Walk-Through Forest Stand Analysis datasheet. The forest characteristics recorded include the type of forest community; dominant species in the canopy, understory, and herbaceous layer; dominant canopy size class; percent canopy closure; stand successional stage; downed woody debris; invasive species present; invasive species cover; and general stand conditions. A full forest stand delineation was not required for this project and no plot points were recorded.

An inventory of specimen trees, defined by MDNR as "trees 30 inches DBH (diameter at breast height) or greater or 75% or more of the DBH of the current State champion of that species", and individual stand-alone trees regardless of size, was completed in the project study area. The DBH, species, and condition were recorded for each of the inventoried trees. The condition of each tree is assessed by an ocular estimation of growth form, visible signs of decay, live crown ratio, and indications of disease or insect infestation. Each inventoried tree was tagged and numbered consecutively. Data obtained from the field reconnaissance was collected with an iPad and a map with the tree locations was provided to a survey team for follow-up field location using traditional survey methods.

FOREST STAND CHARACTERIZATION AND TREE SURVEY – Results

Rummel Klepper & Kahl environmental scientists conducted a walk-through forest stand analysis and tree inventory within the project study area between April and July 2017. The field investigation identified ten forest stands (FS1 through FS10), six hedgerows (H1 through H6) and two reforestation areas (REF1 and REF2). The location of these features can be found on the NRI Plan in **Appendix G**. Photos of the forest stands can be found in **Appendix B** and datasheets for the forest stand characterizations can be found in **Appendix D**.

Forest Stand 1 (FS1): Chestnut Oak Association (Maps 1-5)

FS1 is a mid-successional Chestnut Oak Association forest located south of northbound I-95, and east of MD-152 in the southwestern portion of the study area. The dominant size class is 12-20 inches DBH, with a canopy closure estimated at approximately 80%. The dominant canopy species in FS1 consists of chestnut oak, (*Quercus montana*), white oak, (*Quercus alba*), tulip polar (*Liriodendron tulipifera*) and red maple (*Acer rubrum*), with inclusions of white pine (*Pinus strobus*), and Virginia pine (*Pinus virginiana*). The dominant understory species include American beech (*Fagus grandifolia*), American holly (*Ilex opaca*) and mountain laurel (*Kalmia latifolia*). The herbaceous layer includes round-leaf greenbrier (*Smilax rotundifolia*), multiflora rose (*Rosa multiflora*), and wild onion (*Allium* sp.). FS1 is in good condition overall, with moderate downed woody debris, and low levels of invasive species. FS1 has high retention value due to species composition, low invasive species cover, overall stand condition, and the presence of streams, wetlands and specimen trees within the stand.

Forest Stand 2 (FS2): Red Maple Association (Maps 4-8)

FS2 is an early to mid-successional Red Maple Association forest located south of northbound I-95, east of Clayton Rd in the central portion of the study area. The dominant size class is 2-11 inches DBH, with a canopy closure estimated at approximately 90%. The dominant canopy species in FS1 consist of red maple, tulip polar, and sweet gum (*Liquidambar styraciflua*), with inclusions of loblolly pine (*Pinus taeda*), and American sycamore (*Platanus occidentalis*). The dominant understory species include sweet gum, red maple, and red cedar (*Juniperus virginiana*). The herbaceous layer includes round-leaf greenbrier, multiflora rose, wild onion, and Japanese honeysuckle (*Lonicera japonica*). FS2 is in fair condition overall, with moderate downed woody debris, and high levels of invasive species. FS2 has high retention value due to the presence of streams and wetlands within the stand and its relatively large, contiguous nature.

Forest Stand 3 (FS3): White Oak-Black Oak-Northern Red Oak Association (Map 10)

FS3 is a mid-successional White Oak-Black Oak-Northern Red Oak Association forest located within the gore area of the ramp from northbound I-95 to MD-24 in the northeastern portion of the study area. The dominant size class is 12-30 inches DBH, with a canopy closure estimated at approximately 80%. The dominant canopy species in FS3 consist of white oak, northern red oak, (*Quercus rubra*), and American beech. The dominant understory species include American beech, American holly, sweet gum, red cedar and mountain laurel (*Kalmia latifolia*). The herbaceous layer includes round-leaf greenbrier, Japanese honeysuckle, poison ivy (*Toxicodendron radicans*), and Virginia creeper (*Parthenocissus quinquefolia*). FS3 is in fair condition overall, with moderate downed woody debris, and moderate levels of invasive species. FS3 has high retention value due to species composition, large dominant size class, and the presence of wetlands and specimen trees within the stand.

Forest Stand 4 (FS4): Red Maple Association (Maps 7-10)

FS4 is a mid-successional Red Maple Association forest located south of northbound I-95, and west of MD-24 in the northeastern portion of the study area. The dominant size class is 6-20 inches DBH, with a canopy closure estimated at approximately 80%. The dominant canopy species in FS4 consist of red maple, green ash (*Fraxinus pennsylvanica*) and pin oak (*Quercus palustris*). The dominant understory species include red maple, green ash, round-leaf greenbrier and multiflora rose. The herbaceous layer includes poison ivy, Japanese honeysuckle, round-leaf greenbrier and multiflora rose. FS4 is in fair to

poor condition overall, with moderate downed woody debris, and moderate levels of invasive species. FS4 has moderate retention value due to the presence of streams and wetlands within the stand.

Forest Stand 5 (FS5): White Oak-Black Oak-Northern Red Oak Association (Maps 10-11)

FS5 is a mid-successional White Oak-Black Oak-Northern Red Oak Association forest located within the cloverleaf of the ramp from southbound I-95 to MD-24, in the northeastern portion of the study area. The dominant size class is 12-30 inches DBH, with a canopy closure estimated at approximately 90%. The dominant canopy species in FS5 consist of black oak (*Quercus velutina*), northern red oak, tulip polar, red maple and American beech. The dominant understory species is American beech with inclusions of black gum. The herbaceous layer includes sensitive fern (*Onoclea sensibilis*), and cinnamon fern (*Osmundastrum cinnamomeum*). FS5 is in good condition overall, with moderate downed woody debris, and low levels of invasive species. FS5 has high retention value due to species composition, low invasive species cover, overall stand condition, and the presence of streams, wetlands and specimen trees within the stand.

Forest Stand 6 (FS6): Tulip Poplar Association (Maps 9-11)

FS6 is a mid-successional Tulip Poplar Association forest located within the gore area of the ramp from southbound MD-24 to southbound I-95, in the northeastern portion of the study area. The dominant size class is 12-20 inches DBH, with a canopy closure estimated at approximately 90%. The dominant canopy species in FS6 consist of American beech, tulip poplar, white oak and red maple. The dominant understory species include American beech, sweet gum and red maple. The herbaceous layer includes round-leaf greenbrier, and American beech and red maple seedlings. FS6 is in good condition overall, with moderate downed woody debris, and low levels of invasive species. FS6 has high retention value due to low invasive species cover, and the presence of streams, wetlands, and specimen trees within the stand.

Forest Stand 7 (FS7): Tulip Poplar Association (Maps 10-11)

FS7 is a mid-successional Tulip Poplar Association forest located northwest of the ramp from southbound MD-24 to southbound I-95, in the northeastern portion of the study area. The dominant size class is 6-20 inches DBH, with a canopy closure estimated at approximately 80%. The dominant canopy species in FS7 consist of red maple, American beech, tulip poplar, and white oak. The dominant understory species include American beech, and black gum. The dominate species in the herbaceous layer is American beech seedlings. FS7 is in good condition overall, with moderate downed woody debris, and low levels of invasive species. FS7 has moderate retention value due to low invasive species cover, overall stand condition, and presence of specimen trees within the stand.

Forest Stand 8 (FS8): Tulip Poplar Association (Maps 8-9)

FS8 is an early successional Tulip Poplar Association forest located north of southbound I-95, west of MD-24 in the northeastern portion of the study area. The dominant size class is 6-20 inches DBH, with a canopy closure estimated at approximately 75%. The dominant canopy species in FS8 consist of red maple, sweet gum, tulip poplar, and American beech. The dominant understory species include American beech, sweet gum and red maple. The herbaceous layer includes round-leaf greenbrier, multiflora rose, poison ivy and Japanese honeysuckle. FS8 is in fair condition overall, with low downed woody debris, and high levels of invasive species. FS8 has high retention value due to the presence of streams within the stand.

Forest Stand 9 (FS9): Tulip Poplar Association (Maps 4-8)

FS9 is an early successional Tulip Poplar Association forest located north of southbound I-95, and east of Clayton Road in the central portion of the study area. The dominant size class is 6-11 inches DBH, with a canopy closure estimated at approximately 70%. The dominant canopy species in FS9 consist of red maple, green ash, black gum, sweet gum and tulip poplar. The dominant understory species include American beech, northern red oak, black haw (*Viburnum prunifolium*) and arrowwood (*Viburnum dentatum*). The herbaceous layer includes round-leaf greenbrier, multiflora rose, poison ivy, Japanese honeysuckle and blackberry (*Rubus allegheniensis*). FS9 is in poor to fair condition overall, with moderate downed woody debris, and high levels of invasive species. FS9 has moderate retention value due to its function as privacy screening, and the presence of streams and wetlands within the stand.

Forest Stand 10 (FS10): Red Maple Association (Maps 1-4)

FS10 is a mid-successional Red Maple Association forest located north of southbound I-95, and east of MD-152 in the southwestern portion of the study area. The dominant size class is 6-20 inches DBH, with a canopy closure estimated at approximately 75%. The dominant canopy species in FS10 consist of red maple and sweet gum. The dominant understory species include American beech, sweet gum and red maple. The herbaceous layer includes round-leaf greenbrier, multiflora rose, red maple and sweet gum. FS10 is in good condition overall, with moderate downed woody debris, and low levels of invasive species. FS10 has high retention value due to good overall condition, low invasive species cover, and presence of streams, wetlands and specimen trees within the stand.

Hedgerow 1 (H1): Eastern Red Cedar Association (Maps 1-2)

This vegetated area was classified as a hedgerow during the field investigation, since it lacked the woody stem density to meet the MD DNR definition of forest. H1 is an early-successional Eastern Red Cedar Association. The dominant species include red cedar and callery pear (*Pyrus calleryana*), with a dominant size class of 2-6 inches DBH. The dominant understory species include eastern baccharis (*Baccharis halimifolia*) and sweet gum. The dominant herbaceous layer species is Japanese honeysuckle. H1 is in fair condition overall, with moderate downed woody debris and high levels of invasive species. H1 has low retention value due to its early successional stage and extensive invasive species cover.

Hedgerow 2 (H2): Eastern Red Cedar Association (Maps 1-2)

This vegetated area was classified as a hedgerow during the field investigation, since it lacked the woody stem density to meet the MD DNR definition of forest. H2 is an early-successional Eastern Red Cedar Association. The dominant species include red cedar, callery pear, tree of heaven (*Ailanthus altissima*), and black locust (*Robinia pseudoacacia*), with a dominant size class of 2-11 inches DBH. The dominant understory species include eastern baccharis, tree of heaven and bush honeysuckle (*Lonicera tatarica*). The dominant herbaceous layer species include Japanese honeysuckle, Japanese knotweed (*Reynoutria japonica*), and poison ivy. H2 is in poor condition overall, with moderate downed woody debris and high levels of invasive species. H2 has low retention value due to its early successional stage, extensive invasive species cover and minimal canopy cover.

Hedgerow 3 (H3): Red Maple Association (Map 10)

This vegetated area was classified as a hedgerow during the field investigation since it did not meet the MD DNR size requirements (<10,000 SF) for forest. H3 is an early-successional Red Maple

Association. The dominant species include red maple and sweet gum, with a dominant size class of 2-11 inches DBH. The dominant understory species include red cedar, red maple and round-leaf greenbrier. The dominant herbaceous layer species include poison ivy, bush honeysuckle, and multiflora rose. H3 is in fair condition overall, with low downed woody debris and high levels of invasive species. H3 has moderate retention value due to its early successional stage and high invasive species cover.

Hedgerow 4 (H4): White Oak Association (Map 1)

This vegetated area was classified as a hedgerow during the field investigation, since it lacked the woody stem density to meet the MD DNR definition of forest. H4 is a mid-successional White Oak Association. The dominant species include white oak, sweet gum and Virginia pine, with a dominant size class of 6-20 inches DBH. The dominant understory species include sweet gum, bush honeysuckle, Virginia pine, willow oak (*Quercus phellos*) and American holly. The dominant herbaceous layer species include poison ivy, Japanese honeysuckle, multiflora rose, white oak and round-leaf greenbrier. H4 is in fair condition overall, with low downed woody debris and high levels of invasive species. H4 has moderate retention value due to a stream that runs through the hedgerow.

Hedgerow 5 (H5): Pin Oak-Sweet Gum Association (Map 1)

This vegetated area was classified as a hedgerow during the field investigation since it lacked the woody stem DBH and density requirements to meet the MD DNR definition of forest. H5 is an early-successional Pin Oak-Sweet Gum Association. The dominant species include pin oak, sweet gum and callery pear, with a dominant size class of 6-11 inches DBH. The dominant understory species include sweet gum, eastern baccharis and Japanese knotweed. The dominant herbaceous layer species include poison ivy, Japanese honeysuckle and Japanese knotweed. H5 is in poor condition overall, with low downed woody debris and high levels of invasive species. H5 has low retention value due to high invasive species cover and poor overall condition.

Hedgerow 6 (H6): Red Maple Association (Map 1)

This vegetated area was classified as a hedgerow during the field investigation since it did not meet the MD DNR size requirements (<35 feet wide) for forest. H6 is a mid-successional Red Maple Association. The dominant species include red maple, white oak, sweet gum and white mulberry, with a dominant size class of 6-20 inches DBH. The dominant understory species include Oriental bittersweet (*Celastrus orbiculatus*), poison ivy, rose of Sharon (*Hibiscus syriacus*) and slippery elm (*Ulmus rubra*). The dominant herbaceous layer species include Japanese knotweed and Virginia creeper. H6 is in fair condition overall, with low downed woody debris and high levels of invasive species. H6 has moderate retention value due to its function as privacy screening.

Reforestation Area 1 (REF1): Map 11

REF1 is an early successional reforestation planting next to a stormwater management facility in the northeastern portion of the study area. The dominant canopy species include black gum, willow oak, Virginia pine, sweet gum, black oak and black locust, with a dominant size class of 2-6 inches DBH. There are no dominant understory species. The dominant herbaceous layer species include white snakeroot (*Ageratina altissima*), soft rush (*Juncus effusus*), pennycress (*Thlaspi* sp.), lespedeza (*Lespedeza cuneata*) and broom sedge (*Andropogon virginicus*). REF1 is in good condition overall, with low downed woody debris and no invasive species.

Reforestation Area 2 (REF2): Map 9-10

REF2 is an early successional reforestation planting that bridges a canopy gap between FS7 and FS8 in the northeastern portion of the study area. The dominant canopy species include sweet gum, red maple, pin oak, swamp white oak (*Quercus bicolor*) and American holly, with a dominant size class of 2-6 inches DBH. There are no dominant understory species. The dominant herbaceous layer species include white snakeroot, lespedeza and mugwort (*Artemisia* sp.). REF2 is in good condition overall, with low downed woody debris and low levels of invasive species.

INVENTORIED TREES

Forty specimen trees (\geq 30" DBH) and 25 individual, stand-alone trees were identified within the study area. Information regarding the inventoried trees is summarized in the tree table in **Appendix E**, and the locations of the trees are displayed on the NRI Plan in **Appendix G**.

WETLANDS/WATERS OF THE U.S. DELINEATION-Methods

A team of environmental scientists delineated waters of the U.S., including wetlands, within the study area, and completed the applicable data form for each delineated feature. Each delineated feature was given a unique identifier and photographed. Boundary points were identified for each feature, marked with pink flagging, and numbered consecutively. Boundary point positions were located using traditional survey methods.

Wetlands were delineated in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual, Y-87-I (Environmental Laboratory, 1987); U. S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0, ed. J.F. Berkowitz, J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-12-9. Vicksburg, MS: US Army Engineer Research and Development Center. Routine wetland determination methods with onsite inspection were used to determine the presence of wetlands in the study area.

Waters of the U.S., other than wetlands, were delineated using the limits defined in 33 C.F.R. § 328. The boundaries of non-tidal waters of the U.S. other than wetlands were set at the ordinary high-water mark (OHW). The OHW was determined in the field using physical characteristics established by the fluctuations of water (e.g., change in plant community, changes in the soil character, shelving) in accordance with U.S. Army Corps of Engineers Regulatory Guidance Letter No. 05-05.

Clean Water Act jurisdiction of delineated features was determined in accordance with the June 5, 2007 joint guidance issued by U.S. Environmental Protection Agency and U.S. Army Corps of Engineers following the U.S. Supreme Court's decision in the consolidated cases Rapanos v. United States and Carabell v. United States (Rapanos); and the January 19, 2001 joint guidance issued by U.S. Environmental Protection Agency and U.S. Army Corps of Engineers following U.S. Supreme Court's decision in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC).

WETLAND DELINEATION- Results

Rummel Klepper & Kahl environmental scientists conducted routine wetland delineation within the study area from April to July 2017. Nineteen wetland features and 27 Waters of the US features were

identified. The Waters of the US features include ten perennial Relatively Permanent Waters (RPW), nine intermittent RPW, and eight ephemeral non-RPW.

Delineation results follow and are listed alphabetically. The locations of the delineated features are displayed on the NRI Plan in **Appendix G**. Data sheets for the delineated features can be found in **Appendix C** and photos of all features can be found in **Appendix B**.

Wetland A (Map 1)

Wetland A is a palustrine emergent wetland located southeast of the ramp from northbound MD 152 to northbound I-95. Wetland A originates from a pipe that runs under the on ramp and drains to Waters B. Dominant species include an unidentified fescue species (*Festuca* sp.), with inclusions of broad-leaf cattail (*Typha latifolia*, OBL). Although the fescue species could not be identified, the hummock morphology and hydrologic conditions of the wetland indicate it is likely a wetland species. Hydrologic indicators include the presence of surface water, high water table, saturation, drainage patterns, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters B (Maps 1-2)

Waters B is a perennial RPW located south of the ramp from MD-152 to northbound I-95. Waters B flows east from outside of the study area, through Wetland C and into a stormwater inlet, where flow is directed north under I-95 to Waters G. Waters B receives contributing hydrology from Wetland A and Waters D. Side slopes are 2:1 to 3:1, with stable banks. Channel substrates consist of silts, cobbles, sands, gravel, concrete and muck. The channel ranges from 1-5 feet wide, with a depth of 2-6 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, vegetation matted down, bent, or absent, leaf litter disturbed, water staining, presence of flood litter/debris, presence of wrack line, and observed/predicted flow events. The right bank is forested and the left bank cover types include forest, mowed grass and highway. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Wetland C (Map 2)

Wetland C is a palustrine emergent wetland located south of the ramp from northbound MD-152 to northbound I-95. Wetland C is a stormwater management basin that is in line with Waters B. Dominant species include broad-leaf cattail. Hydrologic indicators include the presence of surface water, high water table and saturation. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters D (Map 2)

Waters D is an intermittent RPW located south of the ramp from MD-152 to northbound I-95. Waters B flows north from outside of the study area and drains to Waters B. Side slopes are 2:1 to 3:1, with moderately eroded banks. Channel substrates consist of silts, sands, and riprap. The channel ranges from 2-5 feet wide, with an average depth of 2 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, vegetation matted down, bent, or absent, leaf litter disturbed, water staining, and observed/predicted flow events. Both the right and left banks are forested. This

feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters E (Map 3)

Waters E is an intermittent RPW located east of the I-95 and MD-152 interchange. Waters E flows north from outside of the study area and is directed under I-95 through a culvert. Waters E receives contributing hydrology from Wetland PP north of I-95 and drains into Waters G north of the study area. Side slopes are 1:1 to 3:1, with moderately stable banks. Channel substrates consist of silts, sands, and concrete. The channel ranges from 2-5 feet wide, with an average depth of 3 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, leaf litter disturbed, sediment deposition, presence of flood litter/debris, presence of wrack line, and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters F (Map 4)

Waters F is a perennial RPW located south of I-95 northbound, and west of the Clayton Road overpass. Waters F flows east from outside of the study area and drains to Waters G. Side slopes are 2:1 and 4:1, with mostly stable banks. Channel substrates consist of silts, sands, and muck. The channel ranges from 1-4 feet wide, with an average depth of 6 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, vegetation matted down, bent, or absent, leaf litter disturbed, water staining, presence of flood litter/debris, presence of wrack line, scour, and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters G (Maps 1-4)

Waters G is a perennial RPW located along I-95 between the I-95 and MD-152 interchange and the Clayton Road overpass. Waters G flows east from outside of the study area through several culverts and eventually drains to Waters U outside the study area. Waters G receives contributing hydrology from Waters B, E, F, J, NN, QQ, RR, and TT, and Wetlands SS, UU and VV within the study area. Side slopes are 2:1 to 3:1, with minor erosion. Channel substrates consist of silts, cobbles, sands, gravel, concrete, muck and riprap. The channel ranges from 4-15 feet wide, with a depth of 4-24 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, shelving, vegetation matted down, bent, or absent, presence of flood litter/debris, presence of wrack line, scour, and observed/predicted flow events. Both the right and left banks are forested. This feature is shown on DNR GIS mapping, and is considered jurisdictional under Rapanos guidance as an RPW.

Wetland H (Map 4)

Wetland H is a palustrine forested/emergent wetland located south of I-95 northbound and west of the Clayton Road overpass. Wetland H extends south beyond the study area and drains to Waters G. Dominant species include a common reed (*Phragmites australis*, FACW) and an unidentified sedge species (*Carex* sp.). Hydrologic indicators include the presence of surface water, high water table, saturation, hydrogen sulfide odor, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters I (Map 4)

Waters I is an intermittent RPW located south of northbound I-95 and west of the Clayton Road overpass. Waters I flows from a stormwater outfall under I-95 east to Waters J. Side slopes are 3:1 with stable banks and channel substrate consists of silt. The channel has an average width of 1 foot, with an average depth of 4 inches, and indicators of Ordinary High Water include vegetation matted down, bent, or absent, leaf litter disturbed, water staining, and observed/predicted flow events. The right bank is forested and the left bank is mowed grass. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters J (Map 4)

Waters J is a perennial RPW located west of the Clayton Road overpass. Waters J flows south from outside of the study area, under I-95 through a culvert, and drains to Waters G beyond the study area. Waters J receives contributing hydrology from Wetland LL and Waters I, II and JJ. Side slopes are 1:1, with moderate erosion. Channel substrates consist of silts, cobbles, sands, and gravel. The channel has an average width of 2 feet, with a depth of 2-6 inches, and indicators of Ordinary High Water include vegetation matted down, bent, or absent, leaf litter disturbed, water staining, presence of wrack line, scour, and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters K (Maps 4-5)

Waters K is an intermittent RPW located south of northbound I-95, and east of the Clayton Road overpass. Waters K originates from a stormwater outfall under I-95, flowing south and draining into Waters G outside of the study area. Side slopes are 1:1 to 2:1, with moderate erosion. Channel substrates consist of silts, sands and gravel. The channel ranges from 1-3 feet wide, with an average depth of 3 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, vegetation matted down, bent, or absent, water staining, presence of flood litter/debris, and observed/predicted flow events. Both the right and left banks include forest and mowed grass. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Wetland L (Map 5)

Wetland L is a palustrine forested wetland located south of northbound I-95, and east of the Clayton Road overpass. Wetland L is an isolated, depressional wetland located beyond the I-95 roadway embankment. Dominant species include red maple (*Acer rubrum*, FAC), sweet gum (*Liquidambar styraciflua*, FAC), soft rush (*Juncus effuses*, FACW) and round-leaf greenbrier (*Smilax rotundifolia*, FAC). Hydrologic indicators include the presence of surface water, high water table, saturation, water-stained leaves, oxidized rhizospheres on living roots, sparsely vegetated concave surface and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters M (Map 6)

Waters M is a perennial RPW located east of the Clayton Road overpass. Waters M flows south from outside of the study area, under I-95 through a culvert, and drains to Waters G beyond the study area. Waters M receives contributing hydrology from Waters HH. Side slopes are 1:1 to 2:1, with stable

banks. Channel substrates consist of silts, cobbles, sands, gravel, and concrete. The channel ranges from 3-8 feet wide, with an average depth of 2 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, presence of wrack line, and observed/predicted flow events. Both the right and left banks are forested. This feature is shown on NWI GIS mapping and is considered jurisdictional under Rapanos guidance as an RPW.

Waters N (Map 6)

Waters N is an intermittent RPW located south of northbound I-95, and east of the Clayton Road overpass. Waters N flows south from a culvert under I-95 and drains to Waters G beyond the study area. Side slopes are 2:1 to 3:1, with minor erosion. Channel substrates consist of sands, gravel, and riprap. The channel has an average width of 3 feet, with a depth of 2-6 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, vegetation matted down, bent, or absent, leaf litter disturbed, water staining, presence of flood litter/debris, presence of wrack line, and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Wetland P (Map 10)

Wetland P is a palustrine forested wetland located north of the ramp from northbound I-95 to MD-24. Wetland P is a closed depression that collects roadside drainage and appears to be isolated. Dominant species include swamp white oak (*Quercus bicolor*, FACW), black gum (*Nyssa sylvatica*, FAC), and round-leaf greenbrier. Hydrologic indicators include the presence of surface water, water marks, water-stained leaves, oxidized rhizospheres on living roots, sparsely vegetated concave surface, and geomorphic position. The soils in this area met the hydric soil indicator F8: Redox Depressions. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Wetland S (Maps 8-9)

Wetland S is a palustrine forested wetland located south of northbound I-95, and east of Winter's Run. Wetland S is a small wetland at the toe of the roadway embankment that collects roadside drainage. Dominant species include pin oak (*Quercus palustris*, FACW), red maple and broad-leaf cattail. Hydrologic indicators include the presence of water-stained leaves, drainage patterns, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Wetland T (Map 10)

Wetland T is a palustrine emergent wetland located south of northbound I-95, and west of the MD-24 overpass. Wetland T originates from a pipe that runs under MD-24, but does not connect to any upstream waters. Dominant species include narrow-leaf cattail (*Typha angustifolia*, OBL) and eastern baccharis. Hydrologic indicators include high water table, saturation, and FAC-neutral test. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters U (Maps 7-8)

Waters U is a perennial RPW (Winters Run) located along Fashion Way. Waters U flows south under I-95 and continues beyond the study area. Waters U receives contributing hydrology from Waters V, W and FF within the study area. Side slopes are 2:1, with stable banks. Channel substrates consist of silts, cobbles, sands, and gravel. The channel has an average width of 30 feet, with a depth of 6 inches to 3 feet, and indicators of Ordinary High Water include clear, natural line impressed on the bank, sediment deposition, presence of flood litter/debris, presence of wrack line, and observed/predicted flow events. The left bank is forested and the right bank consists of forest and road. This feature is shown on NWI or DNR GIS mapping, and is considered jurisdictional under Rapanos guidance as an RPW.

Waters V (Map 8-9)

Waters V is an intermittent RPW located south of northbound I-95, and east of Winters Run. Waters V flows west from outside of the study area to Waters U, and receives contributing hydrology from Wetlands Q, R, S, and X. Side slopes are 2:1, with stable banks. Channel substrates consist of silts, sands, and gravel. The channel ranges from 2-5 feet wide, with an average depth of 6 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, leaf litter disturbed, presence of flood litter/debris, presence of wrack line, and observed/predicted flow events. The right bank is forested and mowed grass, and the left bank is forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters W (Map 8)

Waters W is a perennial RPW located north of southbound I-95, and west of Winters Run. Waters W flows southeast from outside of the study area and drains to Waters U. Side slopes are 2:1, with stable banks. Channel substrates consist of silts and sands. The channel ranges from 1-4 feet wide, with a depth of 2-4 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Wetland X (Map 9)

Wetland X is a palustrine forested wetland located south of northbound I-95, and west of the ramp from I-95 northbound to MD-24. Wetland X is located at the toe of the I-95 roadway slope. Dominant species include green ash, multiflora rose, redtop (*Agrostis gigantea*, FACW), fox-tail sedge (*Carex alopecoidea*, FACW), and poison ivy. Hydrologic indicators include the presence of water-stained leaves, oxidized rhizospheres on living roots, drainage patterns, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters Y (Maps 8-11)

Waters Y is a perennial RPW located north of southbound I-95, and west of MD-24. Waters Y flows east from outside of the study area and drains to Waters U beyond the study area. Waters Y receives contributing hydrology from Wetlands Z, AA, and BB, and Waters CC, DD, EE, and OO. Side slopes are 1:1 to 2:1, with moderate erosion. Channel substrates consist of silts, cobbles, sands, gravel, and riprap. The channel ranges from 3-8 feet wide, with a depth of 6-24 inches, and indicators of Ordinary

High Water include clear, natural line impressed on the bank, vegetation matted down, bent, or absent, leaf litter disturbed, sediment deposition, water staining, presence of flood litter/debris, presence of wrack line, scour, and observed/predicted flow events. Both the right and left banks are forested. This feature is shown on DNR GIS mapping, and is considered jurisdictional under Rapanos guidance as an RPW.

Wetland Z (Map 11)

Wetland Z is a palustrine forested wetland located within the cloverleaf of the ramp from southbound I-95 to MD-24. Wetland Z is a small floodplain depression that drains to Waters Y. Dominant species include skunk cabbage (*Symplocarpus foetidus*, OBL), with inclusions of cinnamon fern (*Osmundastrum cinnamomeum*, FACW). Hydrologic indicators include the presence of high water table, saturation, water-stained leaves, hydrogen sulfide odor, oxidized rhizospheres on living roots, and presence of reduced iron. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Wetland AA (Map 11)

Wetland AA is a palustrine forested wetland located within the cloverleaf of the ramp from southbound I-95 to MD-24. Wetland AA emerges as a seep and drains to Waters Y. Dominant species include Japanese stiltgrass (*Microstegium viminieum*, FAC), quill sedge (*Carex tenera*, FAC), and multiflora rose. Hydrologic indicators include high water table, saturation, hydrogen sulfide odor, presence of reduced iron, and drainage patterns. The soils in this area met the hydric soil indicators A4: Hydrogen Sulfide and F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Wetland BB (Map 10)

Wetland BB is a palustrine forested wetland located within the gore area of the ramp from southbound MD-24 to southbound I-95. Wetland BB is a small, sparsely vegetated wetland depression that drains to Waters CC. Dominant species include red maple and round-leaf greenbrier. Hydrologic indicators include water-stained leaves, sparsely vegetated concave, surface and saturation visible on aerial imagery. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters CC (Map 10)

Waters CC is an ephemeral non-RPW with an adjacent wetland located within the gore area of the ramp from southbound MD-24 to southbound I-95. Waters CC receives contributing hydrology from Wetland BB and flows southwest to Waters Y. Side slopes are 2:1, with minor erosion. Channel substrates consist of sands and gravel. The channel ranges from 1-2 feet wide, with an average depth 6 inches, and indicators of Ordinary High Water include destruction of terrestrial vegetation and scour. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Waters DD (Map 10)

Waters DD is an intermittent RPW located within the gore area of the ramp from southbound MD-24 to southbound I-95. Waters DD intercepts groundwater near the toe of the I-95 road embankment and flows west to Waters Y. Side slopes are 3:1, with stable banks. Channel substrates consist of silts, sands, and gravel. The channel ranges from 1-2 feet wide, with an average depth of 6 inches, and indicators of Ordinary High Water include destruction of terrestrial vegetation and scour. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters EE (Map 9)

Waters EE is a perennial RPW located north of the ramp from southbound MD-24 to southbound I-95. Waters EE flows south from outside of the study area and drains to Waters Y. Side slopes are 2:1, with moderate erosion. Channel substrates consist of silts, cobbles, sands, and gravel. The channel has an average width of 6 feet, with an average depth of 12 inches, and indicators of Ordinary High Water include clear, natural line impressed, on the bank, leaf litter disturbed, water staining, presence of wrack line and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters FF (Map 8)

Waters FF is an intermittent RPW located north of southbound I-95, and west of Winters Run. Waters FF flows southeast from outside of the study area, continues through a culvert under Fashion Way, and drains to Waters U. Side slopes are 2:1 to 3:1, with stable banks. Channel substrates consist of silts, concrete, and muck. The channel has an average width of 2 feet, with a depth of 2-10 inches, and indicators of Ordinary High Water include vegetation matted down, bent, or absent and water staining. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Wetland GG (Map 5)

Wetland GG is a palustrine forested wetland located north of southbound I-95, and east of the Clayton Road overpass. Wetland GG originates as a depression, and continues as a linear feature before draining to Waters HH. Dominant species include black gum, poison ivy, broom sedge (*Carex scoparia*, FACW), and round-leaf greenbrier. Hydrologic indicators include the presence of surface water, high water table, saturation, water marks, water-stained leaves, hydrogen sulfide odor, oxidized rhizospheres on living roots, sparsely vegetated concave surface, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters HH (Maps 5-6)

Waters HH is an ephemeral non-RPW with an abutting wetland located north of southbound I-95, and east of the Clayton Road overpass. Waters HH receives contributing hydrology from Wetland GG, flows northeast and drains to Waters M. Side slopes are 1:1 to 3:1, with stable banks in the upper reach and incision in the lower reach. Channel substrates consist of silts, bedrock, and gravel. The channel ranges from 1-6 feet wide, with an average depth of 3 inches, and indicators of Ordinary High Water include vegetation matted down, bent, or absent, leaf litter disturbed, water staining, and scour. Both

the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Waters II (Map 4)

Waters II is an ephemeral non-RPW and an erosional feature located north of southbound I-95, and west of the Clayton Road overpass. Waters II flows southeast from outside of the study area and drains to Waters J. Side slopes are $\geq 1:1$, with highly unstable banks. Channel substrates consist of silts, cobbles, sands, and gravel. The channel has an average width of 12 feet, with an average depth of 6 inches, and indicators of Ordinary High Water include vegetation matted down, bent, or absent, presence of flood litter/debris, destruction of terrestrial vegetation, presence of wrack line, and scour. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Waters JJ (Map 4)

Waters JJ is an ephemeral non-RPW with an abutting wetland located north of southbound I-95, and west of the Clayton Road overpass. Waters JJ receives contributing hydrology from Wetland KK and flows west to Waters J. Side slopes are $\geq 1:1$, with highly unstable banks. Channel substrates consist of silts, sands, and gravel. The channel has an average width of 12 feet, with an average depth of 6 inches, and indicators of Ordinary High Water include vegetation matted down, bent, or absent, presence of flood litter/debris, destruction of terrestrial vegetation, presence of wrack line, and scour. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Wetland KK (Map 4)

Wetland KK is a palustrine forested wetland located north of southbound I-95, and west of the Clayton Road overpass. Wetland KK is a depressional wetland that drains to Waters JJ. Dominant species include green ash (*Fraxinus pennsylvanica*, FAC), red maple, sweet gum, pin oak, fox-tail sedge, path rush (*Juncus tenuis*, FAC), and Japanese honeysuckle. Hydrologic indicators include water-stained leaves, and drainage patterns. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Wetland LL (Map 4)

Wetland LL is a palustrine emergent wetland located north of southbound I-95, and west of the Clayton Road overpass. Wetland LL is a linear wetland at the toe of the I-95 roadway embankment that drains to Waters J. Dominant species include broad-leaf cattail and fox-tail sedge. Hydrologic indicators include high water table, water-stained leaves, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Wetland MM (Map 4)

Wetland MM is a palustrine forested wetland located north of northbound I-95, and west of the Clayton Road overpass. Dominant species include red maple, pin oak, sweet gum, winterberry (*Ilex verticillata*, FACW), and round-leaf greenbrier. Hydrologic indicators include water-stained leaves, sparsely vegetated concave surface, saturation visible on aerial imagery, and geomorphic position. The

soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters NN (Maps 3-4)

Waters NN is an ephemeral non-RPW and an erosional feature located north of southbound I-95, west of the Clayton Road overpass. Waters NN flows east to Waters G. Side slopes are 2:1, with stable banks. Channel substrates consist of silts and gravel. The channel ranges from 1-3 feet wide, with an average depth of 3 inches, and indicators of Ordinary High Water include vegetation matted down, bent, or absent, and presence of flood litter/debris. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Waters OO (Map 11)

Waters OO is an intermittent RPW located within the cloverleaf of the ramp from southbound I-95 to MD-24. Waters OO receives contributing hydrology from a stormwater management pond and flows south to Waters Y. Side slopes are 3:1, with stable banks. Channel substrates consist of silts, cobbles, concrete, and riprap. The channel ranges from 2-6 feet wide, with a depth of 2-8 inches, and indicators of Ordinary High Water include clear, natural line impressed on the bank, water staining, and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Wetland PP (Map 3)

Wetland PP is a palustrine emergent wetland located north of southbound I-95, and east of the I-95/MD-152 intersection. Wetland PP drains to an inlet that ultimately flows to Waters E. Dominant species include broad-leaf cattail and narrow-leaf cattail. Hydrologic indicators include the presence of surface water, high water table, saturation, water-stained leaves, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters QQ (Map 1)

Waters QQ is an intermittent RPW located within the gore area of the ramp from southbound I-95 to MD-152. Waters QQ originates at a pipe outfall and flows southeast to Waters G. Side slopes are 3:1, with stable banks. Channel substrates consist of silts, sands, and riprap. The channel ranges from 2-4 feet wide, with an average depth of 6 inches, and indicators of Ordinary High Water include vegetation matted down, bent or absent, water staining, and observed/predicted flow events. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is considered jurisdictional under Rapanos guidance as an RPW.

Waters RR (Map 1)

Waters RR is an ephemeral non-RPW draining uplands located north of Jaycee Drive. Waters RR originates outside of the study area and flows southeast to Waters G. Side slopes are 3:1, with stable banks. Channel substrates consist of silts and concrete. The channel has an average width of 2 feet, with an average depth 2 inches, and indicators of Ordinary High Water include changes in the character of soil, vegetation matted down, bent or absent, leaf litter disturbed, presence of flood

litter/debris, and presence of wrack line. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Wetland SS (Map 2)

Wetland SS is a palustrine forested wetland located north of southbound I-95 and east of the I-95/MD-152 intersection. Wetland SS is adjacent to Waters G, but no visible hydrologic connectivity was observed. The dominant species is red maple, but vegetation is sparse. Hydrologic indicators include high water table, saturation, water-stained leaves, sparsely vegetated concave surface, and geomorphic position. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

Waters TT (Maps 2-3)

Waters TT is an ephemeral non-RPW draining uplands located north of southbound I-95, and east of the I-95/MD-152 intersection. Waters TT originates as roadside drainage and flows north to Waters G outside of the study area. Side slopes are 3:1, with moderately stable banks. Channel substrates consist of silts, muck, and leaves. The channel has a width of 1-6 feet, with an average depth 3 inches, and indicators of Ordinary High Water include vegetation matted down, bent or absent, leaf litter disturbed, water staining, and scour. Both the right and left banks are forested. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Wetland UU (Maps 2-3)

Wetland UU is a palustrine forested wetland located north of southbound I-95, and east of the I-95/MD-152 intersection. Wetland UU is a floodplain depression that drains to Waters G outside of the study area. Dominant species include red maple, arrowwood, highbush blueberry (*Vaccinium corymbosum*, FACW), American beech (*Fagus grandifolia*, FACU), and skunk cabbage. Hydrologic indicators include the presence of surface water, high water table, saturation, water-stained leaves, drainage patterns, crayfish burrows, geomorphic position, and microtopographic relief. The soils in this area met the hydric soil indicator F3: Depleted Matrix. This wetland feature is not shown on NWI or DNR GIS mapping, however this area is considered jurisdictional, since all three wetland parameters were met during field investigations.

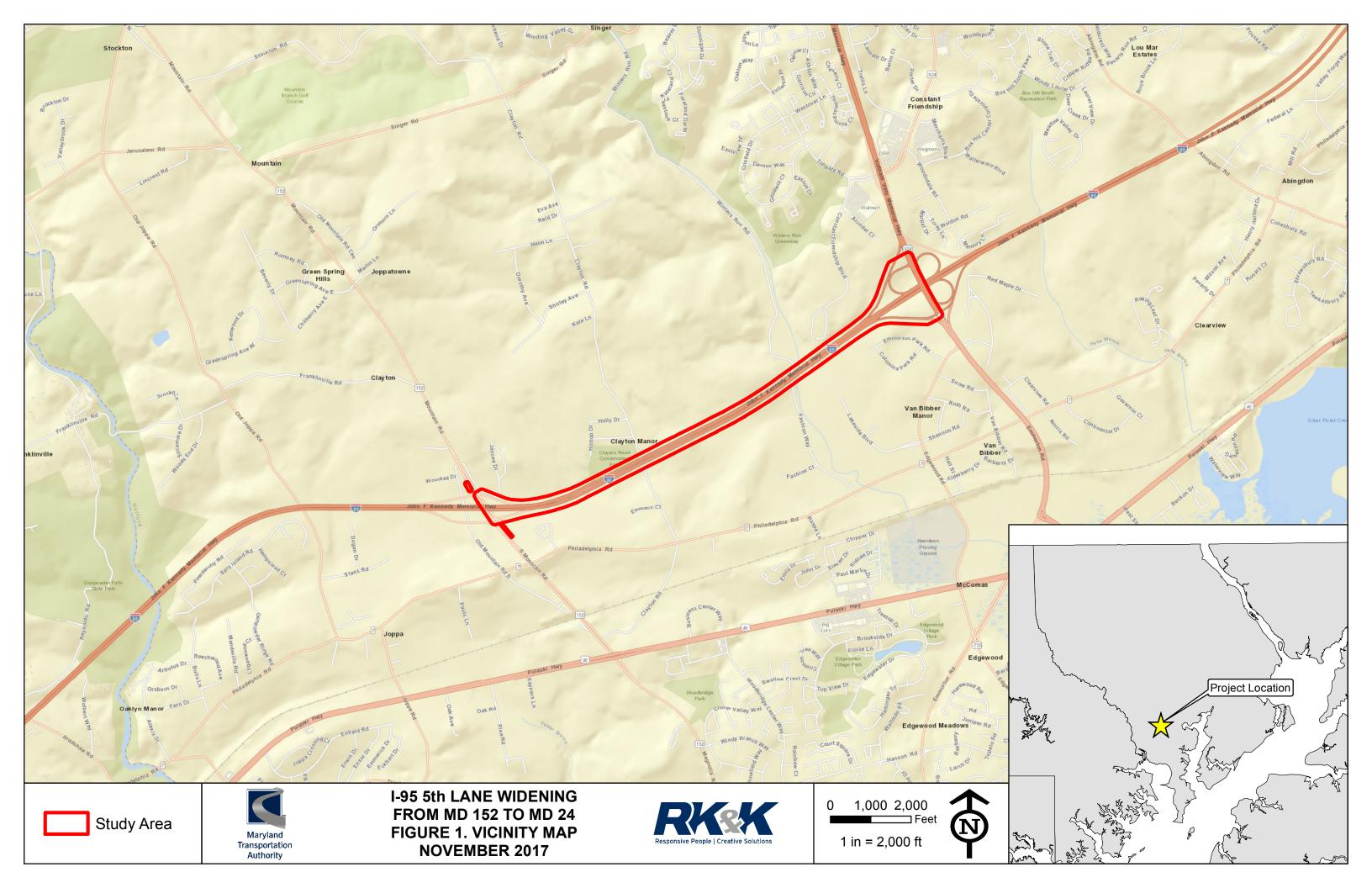
Wetland VV (Map 3)

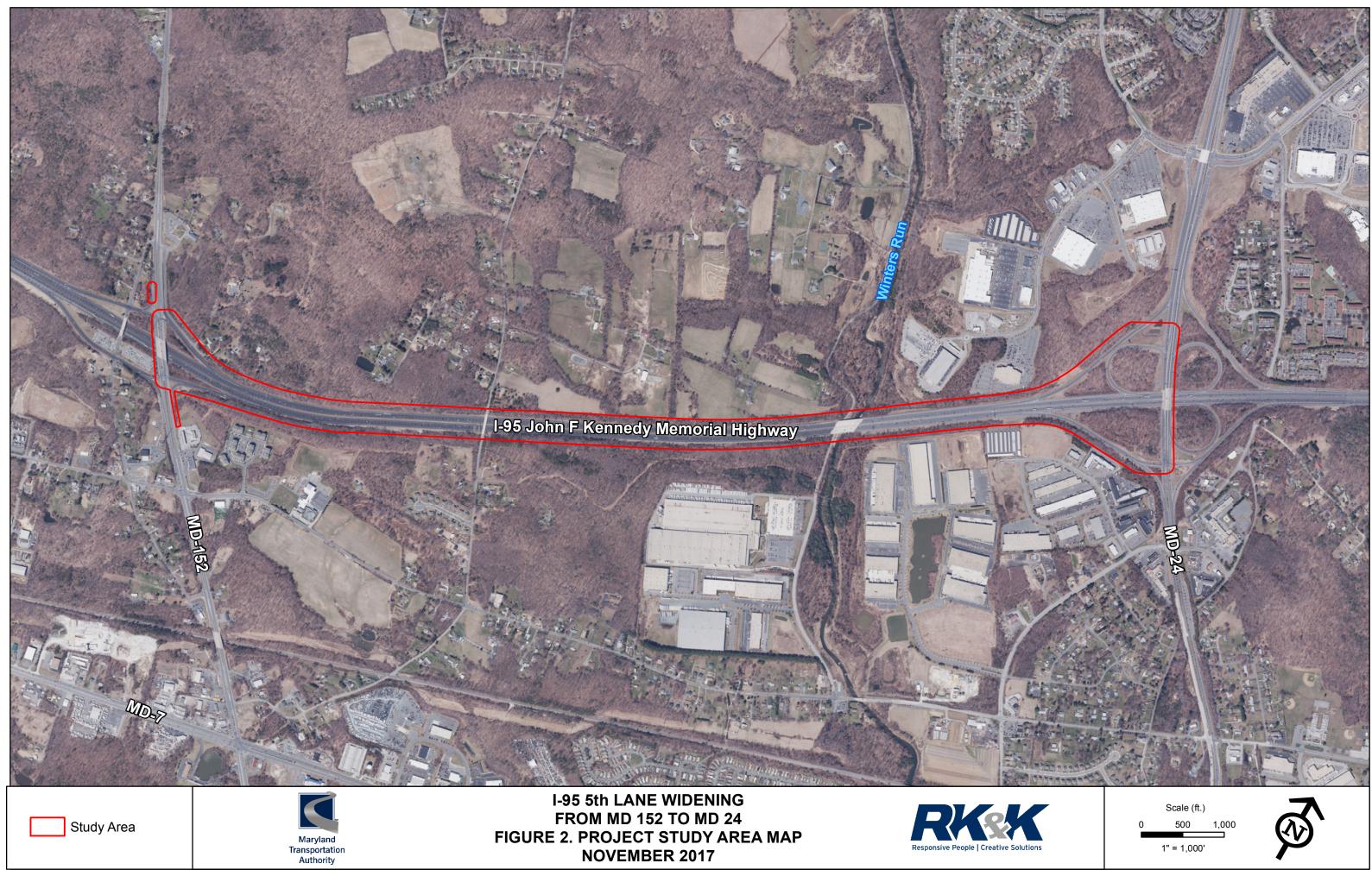
Wetland VV is a palustrine forested wetland located north of southbound I-95, and east of the I-95/MD-152 intersection. Wetland VV is a disturbed wetland adjacent to Waters G. Dominant species include red maple and sweet gum. Hydrologic indicators include the presence of surface water, high water table, saturation, drift deposits, water-stained leaves, presence of reduced iron and sparsely vegetated concave surface. The soils in this area are significantly disturbed and contain fill material throughout the profile. The soil did not exhibit the chroma requirements to meet a hydric soil indicator, but alpha alpha-dipyridyl strips tested positive for reducing conditions in the upper four inches, and the upper 2-14 inches contained abundant redoximorphic features. This wetland feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending MDE and USACE review.

Waters WW (Map 6)

Waters WW is an ephemeral non-RPW draining uplands located north of southbound I-95, and east of the Clayton Road overpass. Waters WW originates outside of the study and flows south under I-95 through a culvert to Waters N. Side slopes are $\geq 1:1$, with moderate erosion. Channel substrates consist of silts, cobbles, sands and gravels. The channel has a width of 4-6 feet, with an average depth 3 inches, and indicators of Ordinary High Water include vegetation matted down, bent or absent, leaf litter disturbed, sediment deposition, presence of flood litter/debris, destruction of terrestrial vegetation, presence of wrack line, sediment sorting, and scour. Both the right and left banks are volunteer hedgerow. This feature is not shown on NWI or DNR GIS mapping, but is potentially considered jurisdictional pending USACE review.

Appendix A – Figures

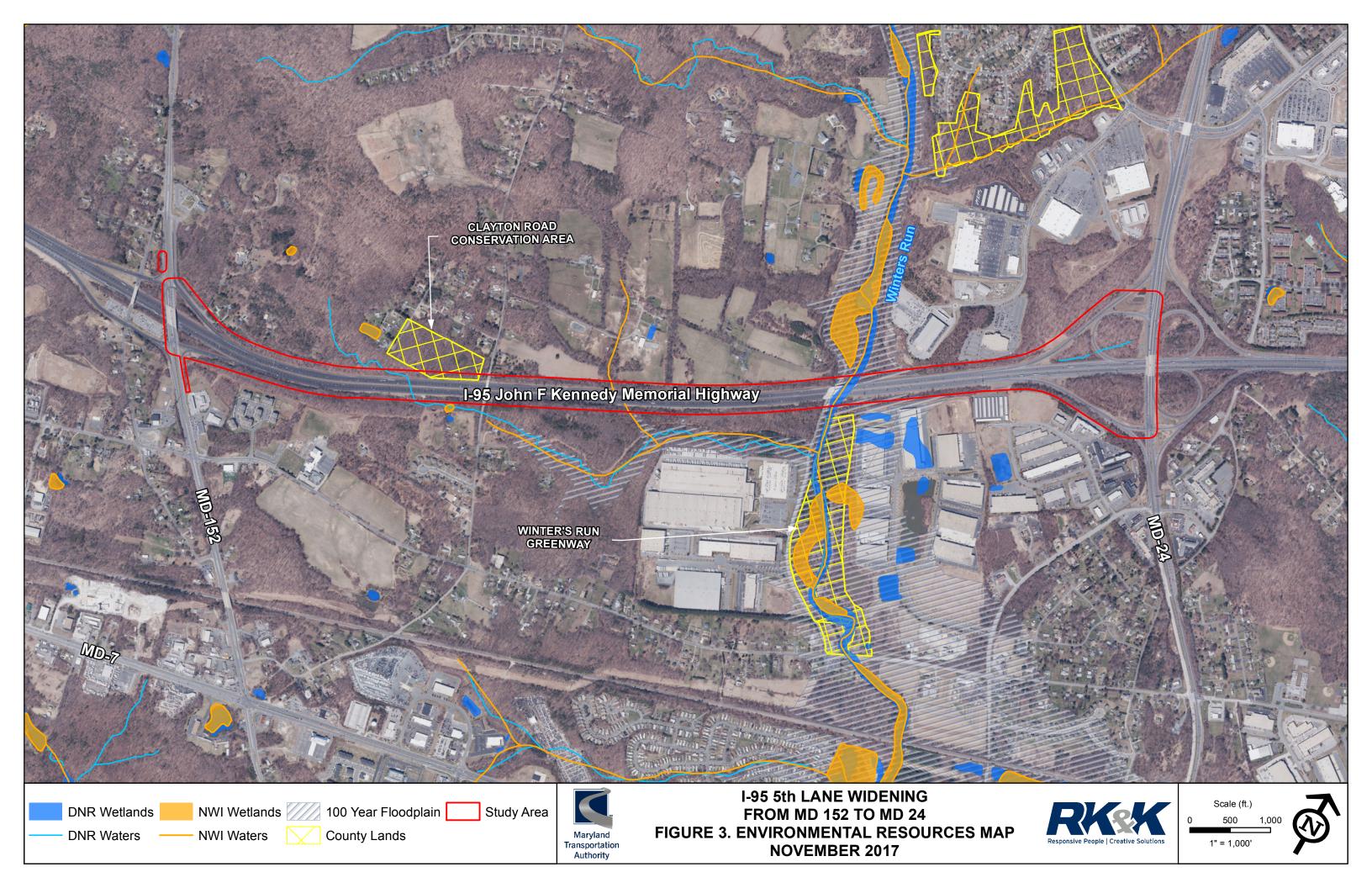


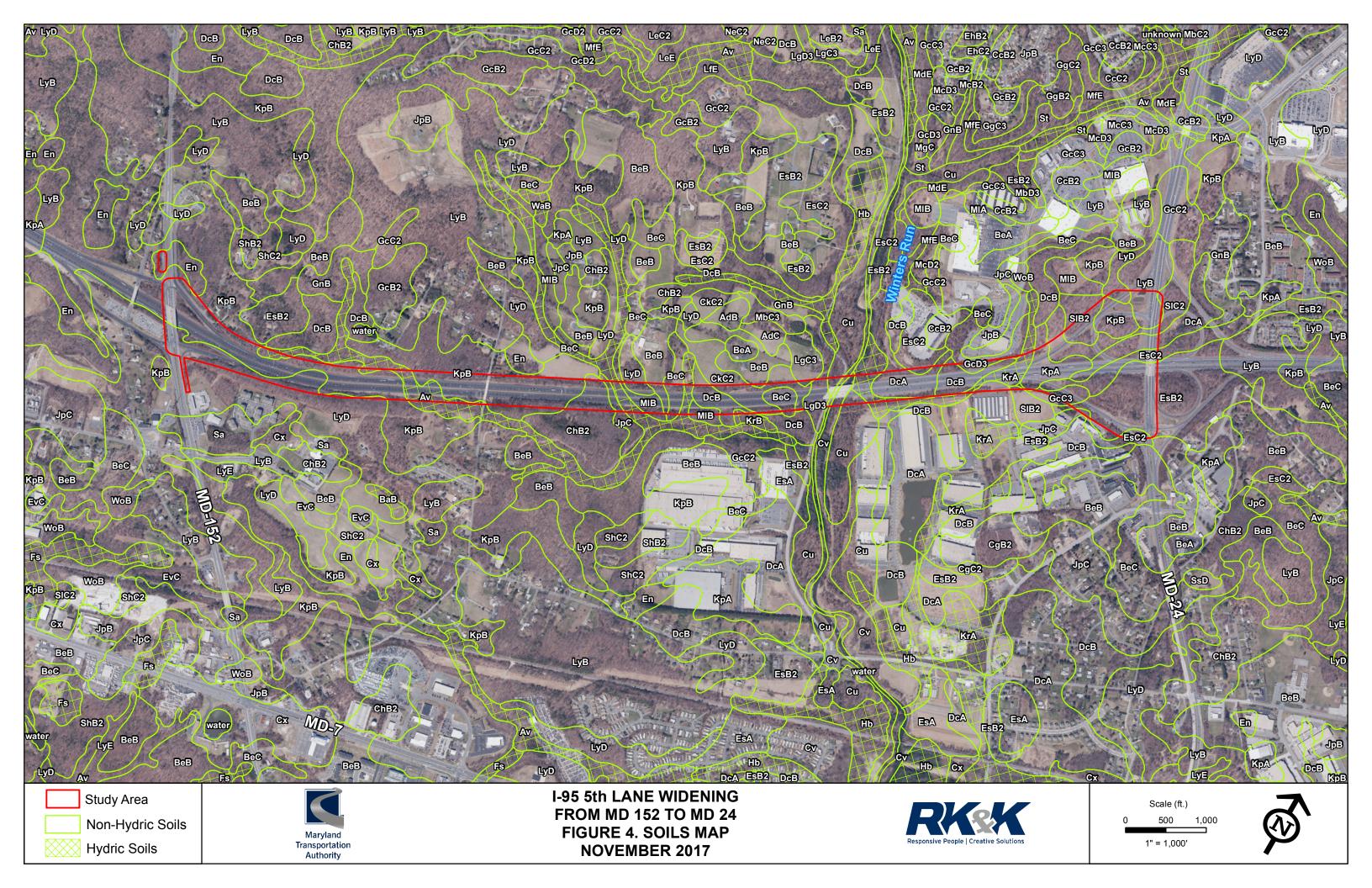


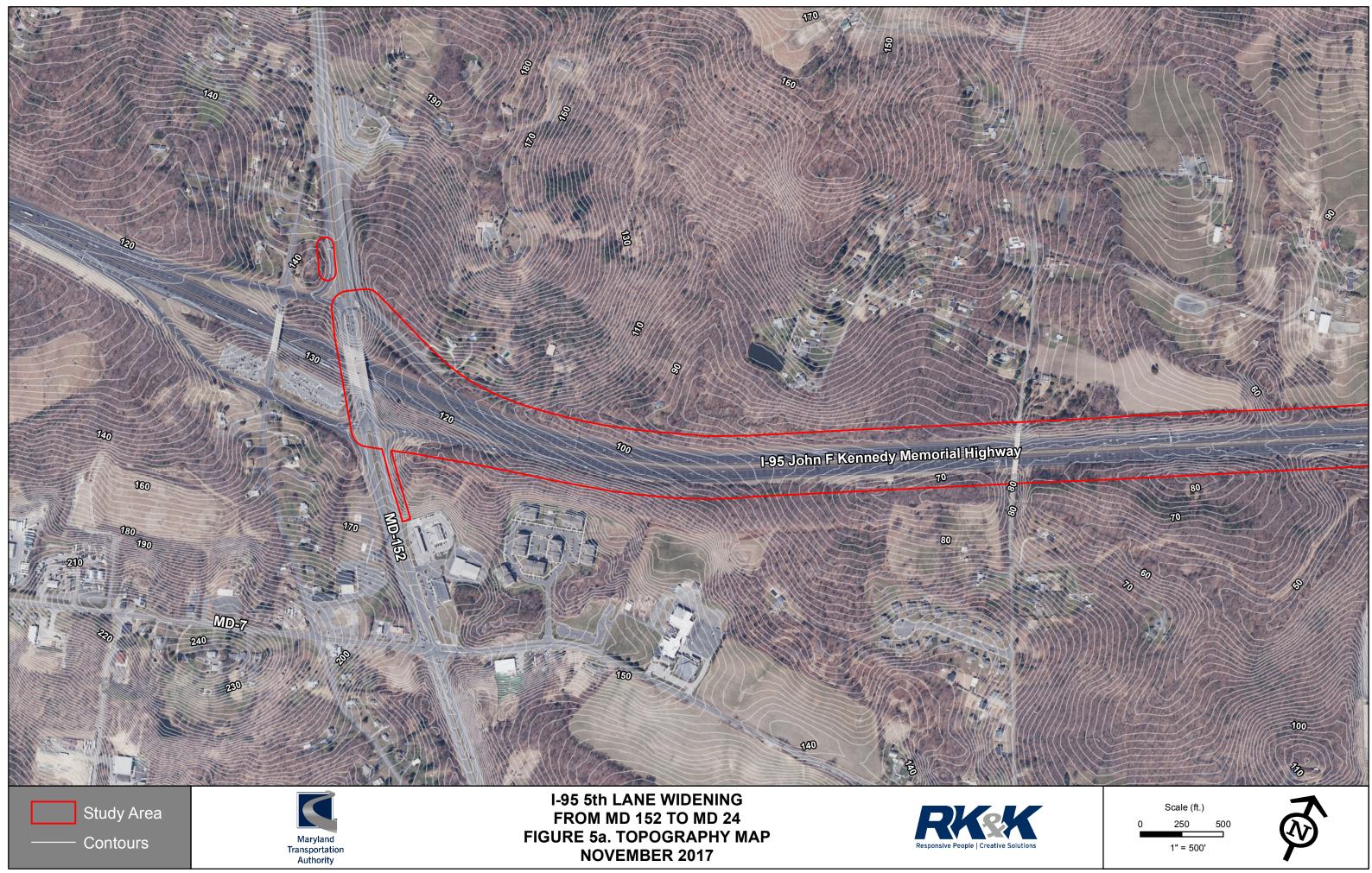






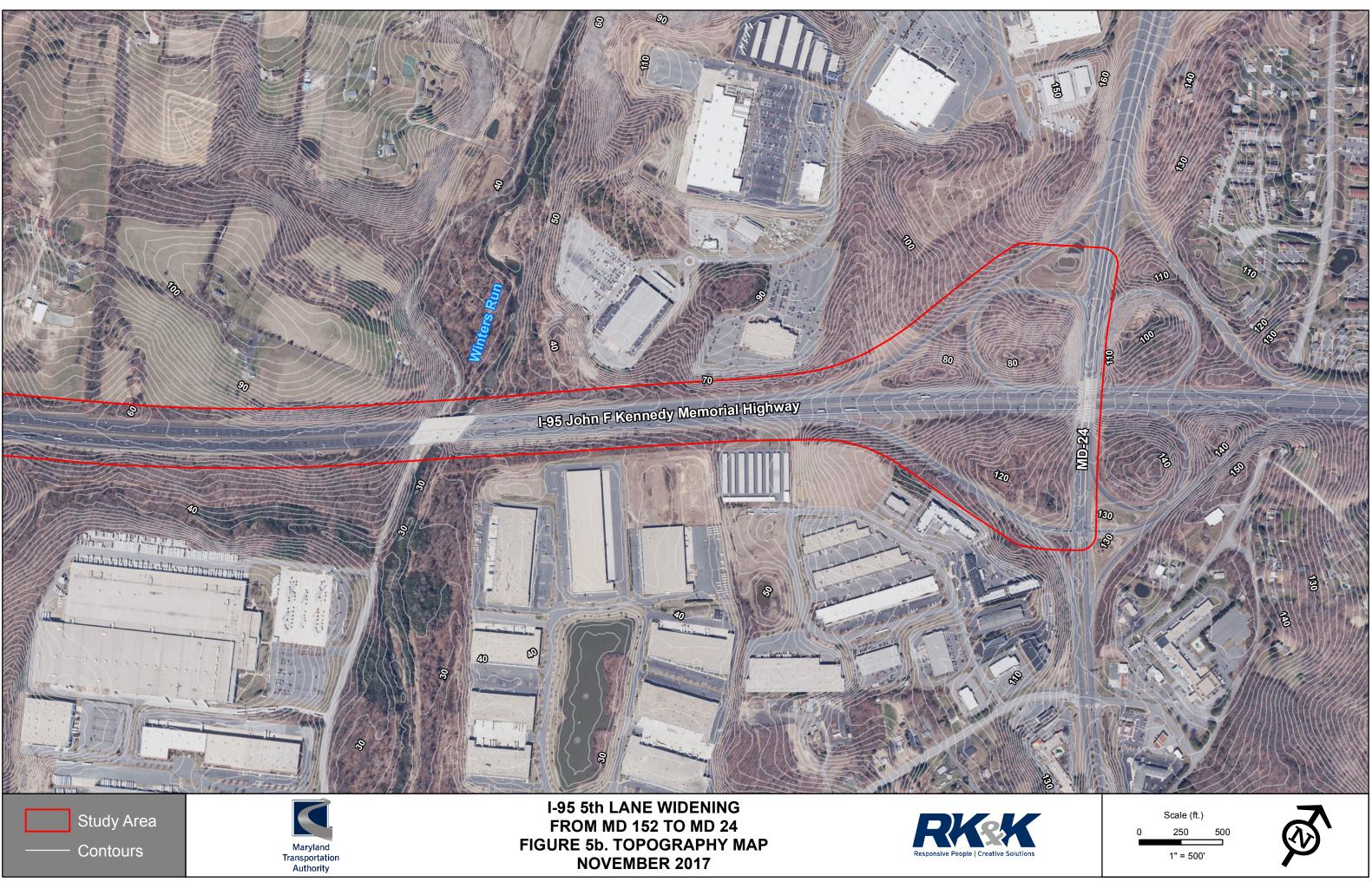


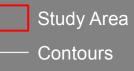


















Wetland A – PEM



Waters B – Perennial RPW



Wetland C – PEM



Waters D – Intermittent RPW

I-95 5th Lane Widening from MD 152 to MD 24 Appendix B – Photographic Documentation



Waters E – Intermittent RPW



Waters F – Perennial RPW

I-95 5th Lane Widening from MD 152 to MD 24 Appendix B – Photographic Documentation



Waters G – Perennial RPW



Wetland H – PFO/PEM



Waters I – Intermittent RPW



Waters J – Perennial RPW

I-95 5th Lane Widening from MD 152 to MD 24 Appendix B – Photographic Documentation



Waters K – Intermittent RPW



Wetland L – PFO



Waters M – Perennial RPW



Waters N – Intermittent RPW



Wetland P – PFO



Wetland S – PFO



Wetland T – PEM



Waters U – Perennial RPW



Waters V – Intermittent RPW



Waters W – Perennial RPW



Wetland X – PFO



Waters Y – Perennial RPW



Wetland Z – PFO



Wetland AA – PFO



Wetland BB – PFO



Waters CC – Ephemeral Non-RPW



Waters DD – Intermittent RPW



Waters EE – Perennial RPW

I-95 5th Lane Widening from MD 152 to MD 24 Appendix B – Photographic Documentation



Waters FF – Perennial RPW



Wetland GG – PFO



Waters HH – Ephemeral Non-RPW



Waters II – Ephemeral Non-RPW



Waters JJ – Ephemeral Non-RPW



Wetland KK – PFO



Wetland LL – PEM



Wetland MM – PFO



Waters NN – Ephemeral Non-RPW



Waters OO – Intermittent RPW



Wetland PP – PEM



Waters QQ – Intermittent RPW



Waters RR – Ephemeral Non-RPW



Wetland SS – PFO



Waters TT – Ephemeral Non-RPW



Wetland UU – PFO



Wetland VV – PFO



Waters WW – Ephemeral Non-RPW



Forest Stand 1



Forest Stand 2



Forest Stand 3





Forest Stand 5





Forest Stand 7





Forest Stand 9





Hedgerow 1



Hedgerow 2



Hedgerow 3



Hedgerow 4



Hedgerow 5



Hedgerow 6



Reforestation Area 1



Reforestation Area 2

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1-95 5th Lane Widening	City/County: <u>Harford County</u>	Sampling Date: <u>4/5/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: A-WET
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): <u>Toe of slope</u>	_ Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>1</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44122	Long:76.34679	Datum: WGS84
Soil Map Unit Name: <u>LyD</u>	NWI classi	ification: <u>PEM</u>
Are climatic / hyd <u>rolog</u> ic condi <u>tion</u> s on the site typica <u>l for</u> this time o	of year? Yes No (If no, explain in	Remarks.)
Are Vegetation, Soil, or Hydrology significa	antly disturbed? Are "Normal Circumstances"	" present? Yes 🔽 No 📘
Are Vegetation, Soil, or Hydrology naturall	y problematic? (If needed, explain any answ	wers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes No No No Yes No No 	Is the Sampled Area within a Wetland?	Yes No					
Remarks:		•						
Wetland originates from pipe under I-95 northbound on ramp from MD 152. Riprap observed at pipe outfall. Wetland drains to Waters B. Wetland follows toe of roadway slope. Photos 45-46. The dominant Festuca sp. could not be								

identified during survey, but since the area exhibits wetland hydrology, hydric soils, and wetland geomorphology, it is presumed the species is tolerant of hydric conditions.

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	loots (C3) 🔲 Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ls (C6)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	D Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes 🔽 No 🔲 Depth (inches): <u>1</u>	
Water Table Present? Yes 🔽 No 🗌 Depth (inches): 5	
Saturation Present? Yes 🔽 No Depth (inches): 0	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspecti	ons), if available:
(includes capillary fringe)	ons), if available:
(includes capillary fringe)	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:

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

Sampling Point: A-WET

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>5x20'</u>)		Species?		Number of Dominant Species	
1				That Are OBL, FACW, or FAC: (/	A)
2				Total Number of Dominant	
3				Species Across All Strata: (I	B)
4				Percent of Dominant Species	
5			. <u></u>	That Are OBL, FACW, or FAC: (/	A/B)
6				Prevalence Index worksheet:	
	0	= Total Cov	er	Total % Cover of: Multiply by:	
50% of total cover: <u>0.0</u>	20% o	f total cover:	0.0	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
Sapling Stratum (Plot size: 5x20')				FACW species $x = 0$	•
1				FAC species x2 x 3 = 0	•
2				FACU species $x = 0$	•
3		·		UPL species x 4 = UPL species x 5 =	•
4					(P)
5				Column Totals: (A) 0	(D)
6				Prevalence Index = B/A =	
	0	= Total Cov	er	Hydrophytic Vegetation Indicators:	
50% of total cover: <u>0.0</u>	20% 0	f total cover	0.0	1 - Rapid Test for Hydrophytic Vegetation	
Shrub Stratum (Plot size: <u>5x20'</u>)	20700		0.0	2 - Dominance Test is >50%	
1				$\boxed{1}$ 3 - Prevalence Index is $\leq 3.0^{1}$	
				$\int \frac{1}{1} 4$ - Morphological Adaptations ¹ (Provide suppo	orting
2 3				data in Remarks or on a separate sheet)	0
				Problematic Hydrophytic Vegetation ¹ (Explain))
4				The dominant Festuca sp. could not be identified during survey.	
5				¹ Indicators of hydric soil and wetland hydrology mu	ıst
6		 = Total Cov		be present, unless disturbed or problematic.	
				Definitions of Five Vegetation Strata:	
50% of total cover: <u>0.0</u>	20% o	f total cover:	0.0	Tree – Woody plants, excluding woody vines,	
Herb Stratum (Plot size: 5x20')				approximately 20 ft (6 m) or more in height and 3 in	
1. Typha latifolia			OBL	(7.6 cm) or larger in diameter at breast height (DBF	<i>т)</i> .
2. Festuca sp.		yes		Sapling – Woody plants, excluding woody vines,	
3	·	·		approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.	S
4					
5		·		Shrub – Woody plants, excluding woody vines,	
6	·	·		approximately 3 to 20 ft (1 to 6 m) in height.	
7		. <u> </u>		Herb – All herbaceous (non-woody) plants, includir	ng
8		·		herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximatel	lv 3
9				ft (1 m) in height.	. y 0
10				Woody vine – All woody vines, regardless of heigh	. +
11				Woody vine – All woody vines, regardless of heigh	π.
	90	= Total Cov	er		
50% of total cover: _45.0	20% o	f total cover:	18.0		
Woody Vine Stratum (Plot size: 5x20')					
1					
2					
3					
4					
5		·			
· ···		= Total Cov		Hydrophytic Vegetation	
				Vegetation Present? Yes <u>No</u>	
50% of total cover: 0.0		total cover:	0.0		
Remarks: (Include photo numbers here or on a separate	sheet.)				

SOIL

Depth	Matrix			x Feature	es			of maloators.
(inches)	Color (moist)	%	Color (moist)		_ <u>Type¹</u>		<u>Texture</u>	Remarks
0-3	10YR4/3	98	5YR6/4	2	<u> </u>		Silt loam	
3-13	10YR4/2	93	2.5Y6/5	5	С	M	Silt loam	
			2.5YR6/4	2	<u>C</u>	M		
			·					
			- <u> </u>					
¹ Type: C=C	oncentration, D=De	epletion, RM	/I=Reduced Matrix, M	S=Maske	d Sand G	rains.		PL=Pore Lining, M=Matrix.
Hydric Soil			_					ators for Problematic Hydric Soils ³ :
Histosol			Dark Surface					2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be				, 148) 🔟 🤇	Coast Prairie Redox (A16)
	istic (A3) en Sulfide (A4)		L Thin Dark Su			147, 148)		(MLRA 147, 148) Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma		(1 2)			(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark	. ,	F6)		<u> </u>	/ery Shallow Dark Surface (TF12)
	d Below Dark Surfa	ace (A11)	Depleted Da		. ,			Other (Explain in Remarks)
	ark Surface (A12)				,			
	/lucky Mineral (S1) A 147, 148)	(LRR N,	Iron-Mangan		ses (F12)	(LKK N,		
	Gleyed Matrix (S4)				(MLRA 1	36, 122)	³ Inc	dicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					etland hydrology must be present,
	d Matrix (S6)		Red Parent N	Material (I	F21) (MLF	RA 127, 14	7) un	nless disturbed or problematic.
Restrictive	Layer (if observed	l):						
Type: Depth (in	ches):						Hydric Soil	l Present? Yes 💽 No 🔵
Remarks:								

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1-95 5th Lane Widening	City/County: Harford County	Sampling Date: 4/5/2017
Applicant/Owner: MDTA	State: MD	Sampling Point: <u>A-UPL</u>
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): <u>Slope</u>	Local relief (concave, convex, none): Concave	Slope (%):
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: _39.44118	Long:76.34690	Datum: WGS84
Soil Map Unit Name: <u>LyD</u>	NWI cla	ssification: <u>N/A</u>
Are climatic / hyd <u>rolog</u> ic condi <u>tions</u> on the site typical for this time of Are Vegetation, Soil, or Hydrology significar Are Vegetation, Soil, or Hydrology naturally		
SUMMARY OF FINDINGS – Attach site map showi	ng sampling point locations, transe	ects, important features, etc.
	Г	

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes O	No No No	Is the Sampled Area within a Wetland?	Yes No
species within the wetland. With	out identifying ng it was likely	the Festuca s a planted roa	pecies the Dominance dside species and the	cies appears to be different from Test and Prevanlence Index could area failed to meet hydrology and meet the criteria. Photos 48-50.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) True Aquatic Plants (B14)	Secondary Indicators (minimum of two required)
	Surface Soil Cracks (B6)
Surface Water (A1)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Drainage Patterns (B10)
Saturation (A3)	
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	bils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain 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 _ Depth (inches):	
Water Table Present? Yes No Depth (inches):	\sim
Saturation Present? Yes No 🗹 Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
No hydrology indicators observed	

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

Sampling Point: A-UPL

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>5x5</u>)	<u>% Cover</u>	Species?		Number of Dominant Species
1			. <u> </u>	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				
5				Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/B)
6		Tables		Prevalence Index worksheet:
	0	= Total Cov	/er	Total % Cover of:Multiply by:
50% of total cover: <u>0.0</u>	20% of	total cover	0.0	OBL species
Sapling Stratum (Plot size: 5x5)				FACW species $x = 0$
1				FAC species x2 = FAC species x3 =
2				
3				FACU species x 4 = $\frac{0}{2}$
4				UPL species x 5 =
				Column Totals: (A) 0 (B)
5			·	
6			·	Prevalence Index = B/A =
	0	= Total Cov	ver	Hydrophytic Vegetation Indicators:
50% of total cover: <u>0.0</u>	20% of	total cover	0.0	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size: 5x5)				2 - Dominance Test is >50%
1. Liquidambar styraciflua	10	yes	FAC	3 - Prevalence Index is $\leq 3.0^1$
2. Baccharis halimifolia	10	yes	FACW	4 - Morphological Adaptations ¹ (Provide supporting
			·	data in Remarks or on a separate sheet)
3			·	Problematic Hydrophytic Vegetation ¹ (Explain)
4			·	
5			·	¹ Indicators of hydric soil and wetland hydrology must
6			. <u> </u>	be present, unless disturbed or problematic.
	20	= Total Cov	ver	Definitions of Five Vegetation Strata:
50% of total cover: <u>10.0</u>				Deminions of the vegetation offata.
	20 % 01			Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: 5x5)			FACU	approximately 20 ft (6 m) or more in height and 3 in.
1. Apocynum androsaemifolium	12	no	FACU	(7.6 cm) or larger in diameter at breast height (DBH).
2Festuca sp.	80	yes	·	Sapling – Woody plants, excluding woody vines,
3Rosa multiflora	10	no	FACU	approximately 20 ft (6 m) or more in height and less
4				than 3 in. (7.6 cm) DBH.
5.				Shrub – Woody plants, excluding woody vines,
6				approximately 3 to 20 ft (1 to 6 m) in height.
7				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
8			·	plants, except woody vines, less than approximately 3
9				ft (1 m) in height.
10			·	Woody vine – All woody vines, regardless of height.
11				Woody vine – All woody vines, regardless of height.
	102	= Total Cov	ver	
50% of total cover: <u>51.0</u>	20% of	total covor	20.4	
	20 % 01			
Woody Vine Stratum (Plot size:)	F			
1. Lonicera japonica	5	yes	FACU	
2			·	
3				
4				
5				
		= Total Cov	/er	Hydrophytic Vegetation
				Vegetation Present? Yes No
50% of total cover: 2.5		total cover	1.0	
Remarks: (Include photo numbers here or on a separate s	heet)			

Festuca sp. could not be identified at time of survey, but resembled the species higher in the landscape.

SO	IL
----	----

Depth	cription: (Describe Matrix	e to the de	oth needed to docur	nent the		or confirm	n the absence	e of indicators.)
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-3	10YR4/3	100					Silty clay loam	
3-13	7.5YR4/4	98	2.5Y4/4	2	С	M	Silt loam	
			2.01 // 1	<u> </u>			Oncioani	·
					·			
					·			·
					·			
		pletion, RM	I=Reduced Matrix, M	S=Masked	d Sand Gr	ains.		PL=Pore Lining, M=Matrix.
Hydric Soil								cators for Problematic Hydric Soils ³ :
			Dark Surface		(00) (2 cm Muck (A10) (MLRA 147)
	pipedon (A2)				. , .		, 148) 🔟 🤇	Coast Prairie Redox (A16)
	istic (A3) en Sulfide (A4)		Thin Dark Su			147, 148)		(MLRA 147, 148)
	d Layers (A5)		Loamy Gleye		(FZ)			Piedmont Floodplain Soils (F19) (MLRA 136, 147)
	uck (A10) (LRR N)		Depleted Ma		-6)			(MERA 130, 147) Very Shallow Dark Surface (TF12)
	d Below Dark Surfa	ce (A11)	Depleted Da		,			Other (Explain in Remarks)
	ark Surface (A12)		Redox Depre					
	Aucky Mineral (S1)	(LRR N.	Iron-Mangan	•	,	LRR N.		
	A 147, 148)	. ,	MLRA 13			,		
	Gleyed Matrix (S4)		🔲 Umbric Surfa		(MLRA 1	36, 122)	³ In	dicators of hydrophytic vegetation and
🔲 Sandy F	Redox (S5)		Piedmont Flo	odplain S	Soils (F19)	(MLRA 14	18) w	etland hydrology must be present,
Stripped	l Matrix (S6)		Red Parent N	Material (F	-21) (MLF	RA 127, 14	7) ui	nless disturbed or problematic.
Restrictive	Layer (if observed):						
Туре:								\cap
	ches):						Hydric Soi	il Present? Yes 🕖 No 🔍
Remarks:								

	Waters	of	the	U.S.	Data	Sheet
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Project: I-95 5th Lane W	idenina				•	vales of		e U.S. Data	-	ire]	ID: B				Stre	am Orde	r: 1	
Date: 4/5/2017	laoning				State: MI	<u>ר</u>				Feature ID: BStream Order: 1Photos: 51-52								
Crew: ET/MH					County:						g Nun	ıber: ⊧	3-11A&B					
Feature Hydr	rologic	Class (cl	heck one)	:														
Tidal	0			ennial			In	termittent							Epheme	ral		
TNW (Subject to	ebb ai	nd 🔿 '	TNW – Pe	erennial		\bigcirc RP	W –	Seasonal	(must	C) No	n-RPV	V dra	ining	g uplands			
\smile flow)			(Flowing		d)	└ flov	<i>w</i> at	least 3 mc	nths a	C					al feature			
			RPW – Pe			yea	r)			C	-				utting wetl			
		\sim	(Flowing	year roun	d)					C				0	acent wetl			
Describe rational for hydrologic class:	Flow	ing at tir	me of su	rvey						C		n-RPV itside c			adjacent o ea)	or abuttin	g upstreai	m
Hydrologic Connecti	vity –	Upstr	eam: Outsi	de cf study	area	Dov	wns	tream: Flows	into a grate			A	Adjaco	ent/A	butting: w	etlands A &	C, Waters D)
Feature Des	riptio	n: (check	all that a	pply)														
			ct to <u>OHV</u>				_		Substr	ate					Vegetati	ion Cove	er Type (N	MBSS)
✓ Natural Channel	Shape		Width: 1-	·5'			∠	Silts		nds	6	N	Auck	Ι	RB: Fores	st		
Artificial (man-n	,		Depth: 2-				\checkmark	Cobbles	✔ Gr	ave	1		Other:	6 6				
✓ Manipulated (ma	n-alter	,	Bank Ero	sion/stab	oility:			Bedrock	Co	oncr	rete	Rip rap	р					
Other: Stable				Side	slo	pe:	1 🖌 2:1	l 🗣	3:1	$\checkmark \leq 2$	4:1	1	LB: Fores	st, mow	ed grass	S,		
Notes: Some areas of bank erosion														highv	vay			
Weather/Pre	Weather/Precipitation Conditions:																	
	Inc	hes of						Mo	thly Dr	oug	ght Co	nditio	n					
	Rain	Within							ICDC R							nth:	Yea	r:
During Field Visit		t Week	http://v	www.ncd	c.noaa.go	v/temp-a	nd	-precip/cli	matolog	ical	-rank	ings/ii	ndex.	php	Feb	ruary	201	7
Ο No rεin	0	0-0.5	0	0	0	\odot		0	0	0)	0	_	C	0	0	0	0
O Light rain	0	0.5-1	-6	-5	-4	-3		-2	-1		0	1		2	3	4	5	6
O Heavy Rain	\odot	>1	Sev	vere Droi	ıght	Modera	ate	Drought		Nor	mal		Mo	odera	tely Wet	S	everely W	Vet
Non-tidal tri	outary	has: (<i>che</i>	eck all tha	t apply;	include pl	notos for			, i i i i i i i i i i i i i i i i i i i									
Bed and Banks							(Ordinary 1	0		Mark	ζ						
✓ Yes			tural line			ank		Sedimen		tion					ment sorti	ng		
No No		<u> </u>	in the cha	racter of	soil		✓ Water staining							Scou				
		Shelving			Presence of floo									erved/pred				
✓ Vegetation matted down, bent, or absent			ent	Destruction of terrestrial veg. Abrupt change in plant community				ty										
Image: Construction of the second state of					Presence of wrack line Other:													
	ř.	1	ui that app	biy; incli	<u> </u>	0		<i>list photo</i> i Mark indi						Cha			t: 05	
	gh Tid		ata			0			cated by	/*		Wata			mical Cha	iracteris	tics	
Oil or scum line Fine shell or deb				₽		/ to availa al markin		uatum			┢┥		r is cl r is d		ored			
	1		/				<u> </u>	anges in tr	nac		╶┠═┥			150010	oreu			
				lines/changes in types Oily film														
	55/ C11d1		·					8	P			2						
Tidal gauges	55/ Char		,						P			Other						

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-95 5th Lane Widening	City/County: Harford County	Sampling Date: <u>4/5/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: <u>C-WET</u>
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Man-made SWM	_ Local relief (concave, convex, none): <u>Concave</u>	Slope (%): _0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44163	Long: <u>-^{76.34514}</u>	Datum: WGS84
Soil Map Unit Name: LyD	NWI class	sification: <u>PEM</u>
Are climatic / hyd <u>rolo</u> gic condi <u>tions</u> on the site typical for this time	of year? Yes No (If no, explain i	n Remarks.)
Are Vegetation, Soil, or Hydrology signification	antly disturbed? Are "Normal Circumstance	s" present? Yes 🚺 No 🛄
Are Vegetation, Soil, or Hydrology naturall	ly problematic? (If needed, explain any ans	swers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes O No O Yes O No O Yes O No O	Is the Sampled Area within a Wetland?	Yes No
Remarks:			
Stormwater management basin	inline with Waters B. Photos	\$ 53-54	

HYDROLOGY

Wetland Hydrology Indicators: Secondary Indicators (minimum of the secondary (minimum of the se	wo required)
Primary Indicators (minimum of one is required; check all that apply)	
Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave S	urface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)	, , ,
Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16)	
Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)	
Sediment Deposits (B2)	
Drift Deposits (B3)	gery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	
Iron Deposits (B5) Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)	
Water-Stained Leaves (B9)	
Aquatic Fauna (B13)	
Field Observations:	
Surface Water Present? Yes 🗹 No 🗋 Depth (inches): <u>8</u>	
Water Table Present? Yes Ves No Depth (inches): 2	
Saturation Present? Yes <u>Ves</u> No <u>Depth</u> (inches): <u>0</u> Wetland Hydrology Present? Yes	No <u>()</u>
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

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

Sampling Point: C-WET

, , , , , , , , , , , , , , , , , , ,	Absolute	- Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 10x20')		Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3		·		Species Across All Strata: (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0</u> (A/B)
6				
		= Total Cov	er	Prevalence Index worksheet:
FOW of tatal answer 0.0				Total % Cover of: Multiply by:
50% of total cover: <u>0.0</u> 10x20'	20% of	total cover	0.0	OBL species x 1 = 0
Sapling Stratum (Plot size: 10x20')				FACW species x 2 = 0
1				FAC species x 3 = 0
2				FACU species x 4 = 0
3				UPL species x 5 = 0
4	·	·		Column Totals: (A) 0 (B)
5				
6				Prevalence Index = B/A =
	0	= Total Cov	er	Hydrophytic Vegetation Indicators:
50% of total cover: <u>0.0</u>	20% of	f total cover	0.0	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size: <u>10x20'</u>)				
1,				3 - Prevalence Index is $\leq 3.0^1$
				4 - Morphological Adaptations ¹ (Provide supporting
2				data in Remarks or on a separate sheet)
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				
5		·		¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
		= Total Cov	er	Definitions of Five Vegetation Strata:
50% of total cover: 0.0	20% of	f total cover:	0.0	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: 10x20')				approximately 20 ft (6 m) or more in height and 3 in.
1. Typha latifolia	60	yes	OBL	(7.6 cm) or larger in diameter at breast height (DBH).
2Ranunculus sp.		no		Sapling – Woody plants, excluding woody vines,
3				approximately 20 ft (6 m) or more in height and less
4.				than 3 in. (7.6 cm) DBH.
5				Shrub – Woody plants, excluding woody vines,
6.				approximately 3 to 20 ft (1 to 6 m) in height.
7.				Herb – All herbaceous (non-woody) plants, including
		·		herbaceous vines, regardless of size, and woody
8				plants, except woody vines, less than approximately 3
9				ft (1 m) in height.
10	·	·		Woody vine – All woody vines, regardless of height.
11				
	65	= Total Cov	er	
50% of total cover: <u>32.5</u>	20% of	f total cover:	13.0	
Woody Vine Stratum (Plot size: 10x20')				
1				
2				
3				
4				
5.				
		= Total Cov	er	Hydrophytic Vegetation
				Vegetation Present? Yes No No
50% of total cover: 0.0		total cover:	0.0	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

SOI	
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			oth needed to docum			or confirm	the absence	e of indicators.)
Depth (inches)	Matrix Color (moist)	%	Redo Color (moist)	<u>x Feature</u> %	s Type ¹	Loc ²	Texture	Remarks
0-3	10YR 4/2	100			<u> </u>		Mucky mineral	Kemano
3-8	2.5Y 4/2	100					Sandy clay loam	
8-14	2.5Y 5/2	98	5YR 4/6	2	С	M	Sandy clay loam	
	2.01 0/2		01114/0	<u> </u>				·
								·
¹ Type: C=Co	oncentration, D=D	epletion, RM	=Reduced Matrix, MS	S=Masked	d Sand Gr	ains.	² Location: F	PL=Pore Lining, M=Matrix.
Hydric Soil I		- I	,					ators for Problematic Hydric Soils ³ :
Histosol			Dark Surface					2 cm Muck (A10) (MLRA 147)
	oipedon (A2)		Polyvalue Be		. , .		148) 🔲 🤇	Coast Prairie Redox (A16)
Black Hi			Thin Dark Su			147, 148)	Π.	(MLRA 147, 148)
	n Sulfide (A4)				(F2)			Piedmont Floodplain Soils (F19)
	l Layers (A5) ick (A10) (LRR N)		Depleted Mai □ Redox Dark \$		-6)			(MLRA 136, 147) /ery Shallow Dark Surface (TF12)
	Below Dark Surf	ace (A11)	Depleted Dark	•	,			Other (Explain in Remarks)
	ark Surface (A12)		Redox Depre				_	(+)
🔲 Sandy M	lucky Mineral (S1)	(LRR N,	Iron-Mangan	ese Mass	es (F12) (LRR N,		
	A 147, 148)		MLRA 13					
	leyed Matrix (S4)		Umbric Surfa					dicators of hydrophytic vegetation and
	edox (S5)				. ,	•	•	etland hydrology must be present,
	Matrix (S6) -ayer (if observe	4)•	Red Parent N	haterial (F		A 127, 147	r) ur	nless disturbed or problematic.
Type:	Layer (II Observed	<i></i>						
Depth (inc	ches):						Hydric Soi	l Present? Yes 💽 No 🦲
Remarks:								

Waters of the U.S. Data Sheet

Project: I-95 5th Lane Widening	Feature ID: D Stream Order: 1					
Date: 4/5/2017	Photos: 56					
Crew: ET/MH	County: Harford	Last Flag Number: D-8A&B				

	Feature	Hydrologic	Class ((check one)
--	---------	------------	---------	-------------

Tidal	Perennial	Intermittent		Ephemeral
$\bigcup_{n \to \infty} TNW (Subject to ebb and$	TNW – Perennial	RPW – Seasonal (must	O Non-	RPW draining uplands
└ _{flow)}	(Flowing year round)	\checkmark flow at least 3 months a	O Non-	RPW erosional feature
	RPW – Perennial	year)	O Non-	RPW with abutting wetland
	(Flowing year round)	O Non-	RPW with adjacent wetland	
Describe rational for hydrologic class:	v wet channel. Flow observed u	-	RPW wetland adjacent or abutting upstream de of study area)	
jor nyurologic cluss.		(Outsi	de of study area)	
Hydrologic Connectivity –	Upstream: Outside of Study Area		Adjacent/Abutting: None	

Feature Description: (check all that apply)

	Shape (with resp		-	Su	bstrate	Vegetation Cover Type (MBSS)			
∠	Natural Channel Shape	Width: 2-5 ft	✓	Silts		Sands		Muck	RB: Forest
	Artificial (man-made)	Depth: 2 inches		Cobbles		Gravel	>	Other:	
∠	Manipulated (man-altered)		Bedrock		Concrete	Rip	rap		
	Other:	e slope: $21:1$ $2:1$ $3:1$ $4:1$					LB: Forest		
No									

Weather/Precipitation Conditions:

	Inches of		Monthly Drought Condition													
	Rain Within		NCDC Regional PDSI Month: Year:													
During Field Visit	Last Week		http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php February 2017									,				
O No rain	Ο	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0	
O Light rain	Ο	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
O Heavy Rain	\odot	>1	Sev	vere Drou	ght	Moderate	oderate Drought		Normal M			Moderately Wet		Severely Wet		

Non-tidal tributary has: (check all that apply; include photos for each & list photo #)

	Bed and Banks	Ordinary High Water Mark									
\checkmark	Yes	>	Clear, natural line impres		Sediment deposition			Sediment sorting			
	No		Changes in the character	of soil	 Image: A start of the start of	Water staining			Scour		
Shelving			Shelving			Presence of flood litter/debris			Observed/predicted flow events		
			Vegetation matted down, bent, or absent			Destruction of terrestri	al veg	g.	Abrupt change in plant community		
✓ Leaf litter disturbed					Presence of wrack line			Other:			
Tidal tributary has: (check all that apply; include photos for each & list photo #)											
	High Tide Line			Mean High Water Mark indicated by:			Chemical Characteristics				
Oil or scum line along shore objects			Survey to available datum				Water is clear				
	Fine shell or debris deposits (foreshore)			Physical markings				Water is discolored			
	Physical markings/characteristics			Vegetation lines/changes in types				Oily film			
	Tidal gauges						Other:				
No	Notes:										

Project: I-95 5th Lane Widening		Feature ID: E	Stream Order: 1
Date: 4/5/2017	State: MD	Photos: 57 -58	
Crew: ET/MH	County: Harford	Last Flag Number: E-14A&B	

Feature	Hydrologic	Class ((check	one):
I Cutul C	ing an onogie	Class	(encers	unc,

Tidal	Perennial	Intermittent		Ephemeral
$O_{\text{TNW}} (\text{Subject to ebb and})$	TNW – Perennial	RPW – Seasonal (must	O Non-R	PW draining uplands
✓ _{flow)}	(Flowing year round)	\checkmark flow at least 3 months a	O Non-R	PW erosional feature
	RPW – Perennial	year)	O Non-R	PW with abutting wetland
	(Flowing year round)		O Non-R	PW with adjacent wetland
Describe rational Flowing	at time of survey. Channel cont	tinues outside of study area	O Non-R	PW wetland adjacent or abutting upstream
for hydrologic class:	, ,	,	(outsid	e of study area)
Hydrologic Connectivity –	Upstream: Outside of Study Area	Downstream: Outside of Study Area	/Waters G	Adjacent/Abutting: Wetland PP

Feature Description: (check all that apply)

	Shape (with resp		_	-	Su	ostrate		Vegetation Cover Type (MBSS)	
∠	Natural Channel Shape	Width: 2-5ft		⊻	Silts	 ✓ 	Sands	Muck	RB: Forest
	Artificial (man-made)	Depth: 3in			Cobbles		Gravel	Other:	
∠	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock	✓	Concrete	-	
	Other:Moderately stableSide slope: $\checkmark \ge 1:1$ $\checkmark 2:1$ $\checkmark 3:1$ $_ \le 4:1$							LB: Forest	
Ne	otes: Concrete channel at downstre								

Weather/Precipitation Conditions:

	In	ches of		Monthly Drought Condition											
	Rai	n Within				Мо	Month:								
During Field Visit	La	st Week	http://w	NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										ebruary 2017	
• No rain	0	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0
O Light rain	Ο	0.5-1	-6	-6 -5 -4 -3 -2 -1 0 1 2									4	5	6
O Heavy Rain	$oldsymbol{\circ}$	>1	Sev	vere Drou	ght	Moderate	e Drought		Normal		Modera	ely Wet S		everely Wet	

	Bed and Banks					(Ordinary High Water M	[ar]	k		
 ✓ 	Yes	>	Clear, natural line impres	sed	on the bank	✓	Sediment deposition				Sediment sorting
	No	Changes in the character of soil					Water staining				Scour
	Shelving					✓	Presence of flood litter	/del	bris	✓	Observed/predicted flow events
			Vegetation matted down,	ber	nt, or absent		Destruction of terrestria	al v	reg.		Abrupt change in plant community
	✓ Leaf litter disturbed					✓	Presence of wrack line				Other:
	Tidal tributary	ha	s: (check all that apply; ind	clud	le photos for each	1 & .	list photo #)				
	High	ı Ti	de Line		Mean High Wat	ter I	Mark indicated by:				Chemical Characteristics
	Oil or scum line al	ong	shore objects		Survey to availa	able	datum		Water	r is	clear
	Fine shell or debris	s de	posits (foreshore)		Physical markin	igs			Water	r is	discolored
	Physical markings/characteristics				Vegetation lines	s/ch	anges in types		Oily f	film	
	Tidal gauges							Other:			
No	Notes:										

Project: I-95 5th Lane Widening		Feature ID: F	Stream Order: 1
Date: 7/7/2017	State: MD	Photos: 726-728	
Crew: ET/KJH	County: Harford	Last Flag Number: F-12A&B	

Feature	Hydrologic	Class ((check	one	:

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and	TNW – Perennial	RPW – Seasonal (must	O Non-RPW draining uplands
\smile flow)	(Flowing year round)	\checkmark flow at least 3 months a	O Non-RPW erosional feature
	RPW – Perennial	year)	O Non-RPW with abutting wetland
	(Flowing year round)		O Non-RPW with adjacent wetland
<i>Describe rational</i> Fed by gr <i>for hydrologic class</i> :	oundwater from wetland outside of study	v area. Likely dries during summer.	 Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Waters G	Adjacent/Abutting: None

Feature Description: (check all that apply)

	Shape (with resp	ect to <u>OHW</u>)		_	-	Su	bstrate	Vegetation Cover Type (MBSS)		
∠	Natural Channel Shape	Width: 1-4'		∠	Silts	 ✓ 	Sands	>	Muck	RB: Forest
	Artificial (man-made)	Depth: 6"			Cobbles		Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock		Concrete		_	
	Other: Mostly stable Side slop						2:1 3:1	✓	≤4:1	LB: Forest
Ne	otes: Mostly stable in upper read									

Weather/Precipitation Conditions:

		iches of n Within				Mo Ma	nth:	Year	:						
During Field Visit	La	st Week	http://w	http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										2017	
• No rain	\odot	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0
O Light rain	Ο	0.5-1	-6	-6 -5 -4 -3 -2 -1 0 1 2								3	4	5	6
O Heavy Rain	0	>1	Sev	ere Drou	ght	Moderate	Normal Moderat				ely Wet S		Severely Wet		

Bed and Banks			(Drdinary High Water M	[arl	k		
✓ Yes	Clear, natural line impre	ssed on the bank		Sediment deposition				Sediment sorting
No No	Changes in the character	 Image: A start of the start of	Water staining				Scour	
	Shelving	✓					Observed/predicted flow events	
	Vegetation matted down	, bent, or absent		Destruction of terrestri	al v	reg.		Abrupt change in plant community
	Leaf litter disturbed					[Other:
Tidal tributary	has: (check all that apply; in	clude photos for eacl	h &	list photo #)				
High	n Tide Line	Mean High Wa	ter]	Mark indicated by:				Chemical Characteristics
Oil or scum line al	ong shore objects	Survey to avail	able	datum		Water	is	clear
Fine shell or debris	s deposits (foreshore)	Physical marking	ngs			Water	' is	discolored
Physical markings/	characteristics	Vegetation line	s/ch	anges in types		Oily f	ïlm	
Tidal gauges				Other:				
Notes:	Notes:							

Project: I-95 5th Lane Widening	Feature ID: G Stream Order:				
Date: 7/7/2017	State: MD	Photos: 715-716			
Crew: ET/KJH	County: Harford	Last Flag Number: G-310A&B multiple num	bered segments		

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and	TNW – Perennial	RPW – Seasonal (must	O Non-RPW draining uplands
\bigcup_{flow}	(Flowing year round)	\checkmark flow at least 3 months a	O Non-RPW erosional feature
	RPW – Perennial	year)	O Non-RPW with abutting wetland
	(Flowing year round)		O Non-RPW with adjacent wetland
Describe rational Heavy b	base flow at time of survey.		O Non-RPW wetland adjacent or abutting upstream
for hydrologic class:			(outside of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside of study area	, Winter's Run Adjacent/Abutting: Waters B, E, F, J, NN, QQ, RR, TT; Wetlands SS, UU, VV

Feature Description: (check all that apply)

Shape (with respect to <u>OHW</u>)					-	Su	bstrate	Vegetation Cover Type (MBSS)		
∠	Natural Channel Shape	Width: 4-15'		∠	Silts	 ✓ 	Sands	✓	Muck	RB: Forest
	Artificial (man-made)	Depth: 4-24"		<u>└</u>	Cobbles	 ✓ 	Gravel	∠	Other:	
∠	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock	 Image: A start of the start of	Concrete	Lar	ge rip rap	
	Other:	Minor erosion	Sid	le sl	ope:	l 🗸	2:1 🖌 3:1		≤4:1	LB: Forest
No	otes: Large rip rap at culvert outfall	east of I-95. Concrete apron at h	nead	wal	l west of I-95	5. Sc	ome areas of	ban	k erosion	

Weather/Precipitation Conditions:

	In	ches of		Monthly Drought Condition											
	Rai	n Within		NCDC Regional PDSI								Мо	Month:		:
During Field Visit	La	st Week	http://w	http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php							Ма	March		2017	
• No rain	\odot	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0
O Light rain	Ο	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
O Heavy Rain	0	>1	Sev	Severe Drought Moderate Drought Normal							Modera	tely Wet	S	everely W	et

	Bed and Banks		Ordinary High Water Mark								
$\mathbf{\overline{\mathbf{A}}}$	Yes	Clear, natural line impressed on the bank Sediment deposition					Sediment deposition				Sediment sorting
	No		Changes in the character of soil				Water staining			✓	Scour
		✓ Shelving			>	Presence of flood litter/	Presence of flood litter/debris			Observed/predicted flow events	
		✓ Vegetation matted down, bent, or absent				Destruction of terrestria	al ve	eg.		Abrupt change in plant community	
			Leaf litter disturbed	✓ Presence of wrack line						Other:	
	Tidal tributary	ha	s: (check all that apply; ind	clud	de photos for each	e & .	list photo #)				
	High	n Ti	de Line		Mean High Wat	er I	Mark indicated by:				Chemical Characteristics
	Oil or scum line al	ong	shore objects		Survey to availa	ıble	le datum Water is clear			clear	
	Fine shell or debris	dej	posits (foreshore)		Physical markin	igs	Water is			is	discolored
	Physical markings/	'cha	racteristics		Vegetation lines	s/ch	nanges in types Oily f		Oily fi	Dily film	
Tidal gauges						Other:					
No	otes:										

Project/Site: I-95 5th Lane Widening	City/County: <u>Harford County</u>	_ Sampling Date: <u>4/11/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: H-WET
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Depression	_ Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>0</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44442	Long:76.33560	Datum: WGS84
Soil Map Unit Name: KpB	NWI classit	fication: PFO/PEM
	of year? Yes / No _ (If no, explain in antly disturbed? Are "Normal Circumstances" ly problematic? (If needed, explain any answ	' present? Yes No

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes _ O _ No _ O No _ O No _ O Yes _ O No _ O No _ O No _ O No _ O	Is the Sampled Area within a Wetland?	Yes No
Remarks:			
Emergent wetland within forest	cover. Wetland extends beyo	ond ROW. Drains to pe	erennial Waters G beyond study area.

Photo 61. The dominant Carex sp. could not be identified during survey, but since the area exhibits wetland hydrology, hydric soils, and wetland geomorphology, it is presumed the species is tolerant of hydric conditions.

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	Roots (C3) 🔲 Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) 🔄 Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	D Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes 🔽 No 🔲 Depth (inches): 2	
Water Table Present? Yes Ves No Depth (inches): 0	
Saturation Present? Yes 🔽 No 🔲 Depth (inches): 0	Wetland Hydrology Present? Yes No
Saturation Present? Yes Ves No Depth (inches): 0	
Saturation Present? Yes 🔽 No 🔲 Depth (inches): 0	
Saturation Present? Yes Image: Proceeding of the second data of th	
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Saturation Present? Yes Image: Proceeding of the second data of th	
Saturation Present? Yes Image: Proceeding of the second data of th	
Saturation Present? Yes Ves Depth (inches): 0 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	

Sampling Point: H-WET

	Absolute	Dominar	nt Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 15x15')			? Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3	·	·		Species Across All Strata: (B)
4		·		Percent of Dominant Species
5		·		That Are OBL, FACW, or FAC: (A/B)
6				Duranda a la devenierica ha etc
	0	= Total Co	over	Prevalence Index worksheet:
50% of total cover: <u>0.0</u>	20% of	total cove	ər: <u>0.0</u>	Total % Cover of: OBL species x 1 = 0
Sapling Stratum (Plot size: 15x15')				FACW species x 1
1				
2				FAC species $x = 0$
3				FACU species $x = 0$
4				UPL species $x = 0$
5				Column Totals: (A) 0 (B)
6				Prevalence Index = B/A =
	0			Hydrophytic Vegetation Indicators:
50% of total cover: _0.0	20% of	total cove	er: 0.0	✓ 1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size: 15x15')	20 /0 01		0. <u>0</u>	2 - Dominance Test is >50%
1				$\boxed{\square}$ 3 - Prevalence Index is $\leq 3.0^1$
2				1 = 1 4 - Morphological Adaptations ¹ (Provide supporting
3				data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation ¹ (Explain)
5				Carex species could not be identified
6				¹ Indicators of hydric soil and wetland hydrology must
0				be present, unless disturbed or problematic.
				Definitions of Five Vegetation Strata:
50% of total cover: 0.0				Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: 15x15')	20% of	total cove	er: <u>0.0</u>	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
<u>Herb Stratum</u> (Plot size: <u>15x15'</u>) 1 Phragmites australis	20% of	total cove		Tree – Woody plants, excluding woody vines,
<u>Herb Stratum</u> (Plot size: <u>15x15'</u>) 1. Phragmites australis 2. Carex sp.	20% of 	total cove	er: 0.0	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines,
Herb Stratum (Plot size: _15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia	20% of 50 25 5	total cove yes yes no	FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
<u>Herb Stratum</u> (Plot size: <u>15x15'</u>) 1. Phragmites australis 2. Carex sp.	20% of 	total cove	er: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5.	20% of 25 5 5	total cove ves ves no no	FACW FAC FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines,
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6.	20% of 25 5 5	total cove ves ves no no	FACW FAC FAC FAC FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5	20% of 25 5 5	ves ves no no	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8.	20% of 5 	total cove	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9.	20% of 	total cove ves ves no no	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5	20% of 	total cove ves ves no no	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9.	20% of 	total cove	er: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5	20% of 	total cove	er: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5	20% of 	total cove	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11.	20% of 	total cove	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5	20% of 5 5 5 	total cove	er: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5 Woody Vine Stratum (Plot size:)	20% of 5 5 5 	total cove	er: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5 Woody Vine Stratum (Plot size:) 1.	20% of 5 5 5 	total cove	er: 0.0 FACW FAC FAC FAC FACW FACW FACW FACW FACW FACW FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5 Woody Vine Stratum (Plot size:) 1. 2.	20% of 5 5 5 	total cove	er: 0.0 FACW FAC FAC FAC FACW FACW FACW FACW FACW FACW FACW FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5 Woody Vine Stratum (Plot size:) 1. 2. 3. 4.	20% of 5 5 5 	total cove	er: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5 Woody Vine Stratum (Plot size:) 1. 2. 3.	20% of 5 5 5 	total cove	er: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5 Woody Vine Stratum (Plot size:) 1. 2. 3. 4. 5.	20% of 	total cove <u>yes</u> <u>no</u> <u>no</u> <u>no</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u>	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
Herb Stratum (Plot size: 15x15') 1. Phragmites australis 2. Carex sp. 3. Smilax rotundifolia 4. Juncus effusus 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 42.5 Woody Vine Stratum (Plot size:) 1. 2. 3. 4.	20% of 50 5 5 5 5 7 _ 7	total cove <u>yes</u> <u>no</u> <u>no</u> <u>no</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u> <u>rotal cove</u>	er: 0.0 FACW FAC FAC FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.

US Army Corps of Engineers

SOIL

Profile Desc	cription: (Describe	to the dep	oth needed to docun	nent the i	indicator	or confirm	n the absence	e of indicators.)
Depth	Matrix		Redo	k Feature	s			
<u>(inches)</u>	Color (moist)	%	Color (moist)	%	Type ¹	_Loc ²	Texture	Remarks
0-3	10YR 4/1	98	10YR 3/6	2	C		SCL	Organic inclusions
3-12	5Y 5/1	85	10YR 3/6	15	С	М	SCL	Some pore lining concentration
						·		
						·		
						·		
¹ Type: C=C	oncentration, D=De	 pletion. RM	=Reduced Matrix, MS	 S=Masked	d Sand Gr	 ains.	² Location: F	PL=Pore Lining, M=Matrix.
Hydric Soil		,,,	,					ators for Problematic Hydric Soils ³ :
Histosol			Dark Surface	(S7)				2 cm Muck (A10) (MLRA 147)
	oipedon (A2)		Polyvalue Be		ce (S8) (N	ILRA 147.		Coast Prairie Redox (A16)
	istic (A3)		Thin Dark Su				, ,	(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye			,	Π	Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Mat		(• =)			(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark S		-6)			/ery Shallow Dark Surface (TF12)
	d Below Dark Surfa	ce (A11)	Depleted Dar	•	,			Other (Explain in Remarks)
	ark Surface (A12)	56 (7117)	Redox Depre					
	lucky Mineral (S1) (,			
	A 147, 148)		MLRA 13			LIXIX IN,		
						6 400)	31.0	diasters of budroubutic vession and
	Bleyed Matrix (S4)		Umbric Surfa					dicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo			•		etland hydrology must be present,
	Matrix (S6)		Red Parent M	laterial (F	·21) (MLR	A 127, 14	7) ur	less disturbed or problematic.
Restrictive	Layer (if observed)):						
Depth (in	ches):						Hydric Soi	l Present? Yes 💽 No 🦲
Remarks:								

Project/Site: 1-95 5th Lane Widening	City/County: Harford County	_ Sampling Date: <u>4/11/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: H-L-UPL
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Roadway slope	Local relief (concave, convex, none): <u>Convex</u>	Slope (%): <u>2</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44445	Long: <u>-76.33558</u>	Datum: WGS84
Soil Map Unit Name: KpB	NWI classif	fication: <u>N/A</u>
Are climatic / hyd <u>rolog</u> ic condi <u>tions</u> on the site typical for this time of	of year? Yes _ 🖌 No (If no, explain in	Remarks.)
Are Vegetation, Soil, or Hydrology significa	antly disturbed? Are "Normal Circumstances"	' present? Yes 📕 No 📘
Are Vegetation, Soil, or Hydrology naturally	y problematic? (If needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes O No O Yes O No O Yes O No O	Is the Sampled Area within a Wetland?	Yes No No
Remarks:			

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living F Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled So Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks)	Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2)
 Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) 	 Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes Water Table Present? Yes No Image: Depth (inches): Saturation Present? Yes No Image: Depth (inches): Saturation Present? Yes No Image: Depth (inches):	Wetland Hydrology Present? Yes No
Saturation Present? Yes No Depth (inches): (includes capillary fringe) Image: Constraint of the second data (stream gauge, monitoring well, aerial photos, previous inspect	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
(includes capillary fringe)	

Sampling Point: H-L-UPL

	Absolute	Dominan	t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 10' R)	<u>% Cover</u>		<u>Status</u>	Number of Dominant Species
1. Acer rubrum		yes	FAC	That Are OBL, FACW, or FAC: 2 (A)
2. Liriodendron tulipifera	20	yes	FACU	Total Number of Dominant
3				Species Across All Strata: <u>5</u> (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>40.0</u> (A/B)
6				
	80	= Total Co	ver	Prevalence Index worksheet:
50% of total cover: <u>40.0</u>	20% of	total cove	r: 16.0	Total % Cover of: Multiply by:
Sapling Stratum (Plot size: <u>10' R</u>)				OBL species x 1 = 0
1,				FACW species $x = \frac{0}{240}$
2				FAC species $\frac{80}{25}$ x 3 = $\frac{240}{210}$
				FACU species <u>85</u> x 4 = <u>340</u>
3				UPL species x 5 = <u>0</u>
4				Column Totals: <u>165</u> (A) <u>580</u> (B)
5				3.52
6				Prevalence Index = $B/A = \frac{3.52}{2}$
	0 :	= I otal Co	ver	Hydrophytic Vegetation Indicators:
50% of total cover: <u>0.0</u>	20% of	total cove	r: <u>0.0</u>	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size: <u>10' R</u>)				2 - Dominance Test is >50%
1. <u>Rosa multiflora</u>	40	yes	FACU	3 - Prevalence Index is $\leq 3.0^1$
2				4 - Morphological Adaptations ¹ (Provide supporting
3				data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation ¹ (Explain)
5				
6.				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		= Total Co	ver	· · · ·
				Definitions of Five Vegetation Strata:
50% of total cover: <u>0.0</u>	20% of	total cove	r: <u>0.0</u>	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: <u>10' R</u>) 1. Allium vineale	F	20	FACU	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
	5	no		
2. Lonicera japonica	20	yes	FACU	Sapling – Woody plants, excluding woody vines,
3. Smilax rotundifolia	20	yes	FAC	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
4	·			
5				Shrub – Woody plants, excluding woody vines,
6	·			approximately 3 to 20 ft (1 to 6 m) in height.
7				Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
9				ft (1 m) in height.
10				
11				Woody vine – All woody vines, regardless of height.
	45	= Total Co	ver	
50% of total cover: 22.5	20% of	total cove	r: 9.0	
Woody Vine Stratum (Plot size: <u>10' R</u>)	2070 01			
1				
2				
3				
4				
5				Hydrophytic
	0 :	= Total Co	ver	Vegetation
50% of total cover: <u>0.0</u>	20% of	total cove	r: <u>0.0</u>	Present? Yes <u>V</u> No <u>V</u>
Remarks: (Include photo numbers here or on a separate s	sheet.)			

SOIL

Profile Desc	ription: (Describe	to the dep	th needed to docum	nent the i	ndicator o	or confirm	the absence	of indicate	ors.)	
Depth	Matrix			Feature						
<u>(inches)</u>	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-2	7.5YR 2.5/1	100					Organic	High or	ganics	
2-6	10YR 4/2	100					Fine sandy clay			
		<u> </u>								
		letion, RM=	Reduced Matrix, MS	S=Masked	I Sand Gra	iins.			ng, M=Matrix.	
Hydric Soil I			_						roblematic Hyd	
Histosol			Dark Surface						A10) (MLRA 14	7)
	oipedon (A2)		Polyvalue Bel				148) 📙 🤇		e Redox (A16)	
Black Hi			Thin Dark Su	. ,	•	47, 148)	_	(MLRA 14		
	n Sulfide (A4)		Loamy Gleye		F2)		L F		odplain Soils (F	⁻ 19)
	Layers (A5)		Depleted Mat				Π.	(MLRA 13	· ·	TF (a)
	ick (A10) (LRR N)	- (444)			,				/ Dark Surface (in in Remarks)	TF12)
	d Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Dar		. ,			iner (Expla	in in Remarks)	
	lucky Mineral (S1) (I									
	4 147, 148)		MLRA 136		es (i 12) (-1111 14,				
	Bleyed Matrix (S4)		Umbric Surfa		MI RA 13	6 122)	³ Inc	licators of h	ydrophytic vege	tation and
	ledox (S5)		Piedmont Flo						logy must be pr	
	Matrix (S6)		Red Parent M			•	•		ed or problemat	
	_ayer (if observed)	•			_ , , ,	,	1			
Type: Ro										
Depth (inc							Hydric Soil	Present?	Yes 🔾	No 💽
							Tryane oon	T Tesent:		
Remarks:										

Project: I-95 5th Lane Widening	Feature ID: Stream Order: 1				
Date: 4/11/2017	Photos: 62-63				
Crew: ET/MH	County: Harford	Last Flag Number: 1-4A&B			

Feature	Hydrologic	Class (check	one):
I CHCHIC	IL, GIOLOGIO	C16600 (Unicer.	

Tidal	Perennial	Intermittent		Ephemeral		
TNW (Subject to ebb and	TNW – Perennial	RPW – Seasonal (must	O Non-	RPW draining uplands		
\smile flow)	(Flowing year round)	flow at least 3 months a	O Non-	RPW erosional feature		
	RPW – Perennial	year)	O Non-	RPW with abutting wetland		
	(Flowing year round)		O Non-	RPW with adjacent wetland		
Describe rational Water in channel observed. No channel upstream. Algae indicates prolonged water presence.				O Non-RPW wetland adjacent or abutting upstream		
for hydrologic class:				(outside of study area)		
Hydrologic Connectivity – Upstream: None Downstream: Waters J			Adjacent/Abutting: None			

Feature Description: (check all that apply)

	Shape (with resp	Substrate							Vegetation Cover Type (MBSS)	
	Natural Channel Shape	Width: 1'		⊻	Silts		Sands		Muck	RB: Forest
∠	Artificial (man-made)	Depth: 4"			Cobbles		Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock		Concrete		_	
	Other:	Stable	Side slope: $21:1$ $2:1$ $3:1$ $4:1$					LB: Mowed grass		
No	Notes: Manmade stormwater conveyance at toe of slope. Flows to Waters J									

Weather/Precipitation Conditions:

	In	ches of		Monthly Drought Condition											
	Rai	n Within		NCDC Regional PDSI										Year	:
During Field Visit	La	st Week	http://w	ttp://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php							Ма	March		,	
• No rain	\odot	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0
O Light rain	Ο	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
O Heavy Rain	0	>1	Sev	ere Drou	ght	Moderate	Moderate Drought		Normal Moder			tely Wet	S	Severely Wet	

	Bed and Banks	Ordinary High Water Mark									
\checkmark	Yes		Clear, natural line impres	sed on the bank Sediment depo		Sediment deposition				Sediment sorting	
	No		Changes in the character	of soil V Water staining					Scour		
	Shelving			Presence of flood litter	:/det	oris	✓	Observed/predicted flow events			
		Vegetation matted down, bent, or absent		bent, or absent		Destruction of terrestri	ial v	eg.		Abrupt change in plant community	
		>	Leaf litter disturbed			Presence of wrack line	;			Other:	
	Tidal tributary	ha	s: (check all that apply; ind	clude photos for eacl	h &	list photo #)					
	High Tide Line Mean High		Mean High Wa	Mean High Water Mark indicated by:					Chemical Characteristics		
	Oil or scum line al	ong	shore objects	Survey to avail	Survey to available datum Wate			Water	ater is clear		
	Fine shell or debris	de	posits (foreshore)	Physical marking	ngs			Water	ter is discolored		
	Physical markings/characteristics			Vegetation line	n lines/changes in types Oily			Oily fi	ly film		
	Tidal gauges				Othe			Other:	er:		
Ne	otes:										

Project: I-95 5th Lane Widening	Feature ID: J Stream Order:				
Date: 4/11/2017	Photos: 64-65				
Crew: et/mh	County: Harford	Last Flag Number: J-4A&B (downstream of I-95) J-10A&B (upstream of I-95)			

	Feature	Hydrologic	Class	(check one):
--	---------	------------	-------	--------------

Tidal	Perennial	Intermittent	Ephemeral			
$O_{\text{TNW}} (\text{Subject to ebb and})$	TNW – Perennial	RPW – Seasonal (must	O Non-RP	W draining uplands		
∪ _{flow)}	(Flowing year round)	flow at least 3 months a	O Non-RP	W erosional feature		
	RPW – Perennial	year)		W with abutting wetland		
	(Flowing year round)		O Non-RP	W with adjacent wetland		
Describe rational Steadily		O Non-RPW wetland adjacent or				
for hydrologic class:			(outside of study area)			
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside of study area	Waters G	Adjacent/Abutting: Waters I, II, JJ; Wetland LL		

Feature Description: (check all that apply)

	Shape (with respect to <u>OHW</u>)					Sul	ostrate		Vegetation Cover Type (MBSS)
✓ Natural Channel Shape Width: 2'					Silts	 	Sands	Muck	RB: Forest
	Artificial (man-made)		✓	Cobbles	✓	Gravel	Other:		
	Manipulated (man-altered)			Bedrock		Concrete			
	Other:	Side	e slo	ope: 🖌 ≥1:1		2:1 3:1	≤4:1	LB: Forest	
N_{0}	otes: Incised channel with ste								

Weather/Precipitation Conditions:

	In	ches of					Mo	nthly D	rought C	Conditio	n				
	Rain Within NCDC Regional PDSI									Мо	nth: Year:		:		
During Field Visit	8								Ма	rch 2017		,			
• No rain	\odot	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0
O Light rain	Ο	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
O Heavy Rain	0	>1	Sev	vere Drou	ght	Moderate	e Drought		Normal		Modera	tely Wet	S	everely W	et

	Bed and Banks		Ordinary High Water Mark									
\checkmark	Yes	Clear, natural line impressed on the bank Sediment depositi						Sediment deposition				Sediment sorting
	No		Changes in the character	of s	oil	>		Water staining				Scour
			Shelving					Presence of flood litter/	/del	bris	✓	Observed/predicted flow events
		>	Vegetation matted down,	ber	nt, or absent			Destruction of terrestria	al v	reg.		Abrupt change in plant community
		>	Leaf litter disturbed			 		Presence of wrack line Other:				Other:
	Tidal tributary	ha	s: (check all that apply; ind	clud	le photos for each	e &	k lis	st photo #)				
	High	n Ti	de Line		Mean High Wat	er l	M	ark indicated by:				Chemical Characteristics
	Oil or scum line al	ong	shore objects		Survey to availa	ıble	e d	atum		Water	r is	clear
	Fine shell or debris	dej	posits (foreshore)		Physical markir	igs	5			Water	r is	discolored
	Physical markings/characteristics					s/changes in types Oily			Oily f	Oily film		
	Tidal gauges									Other	:	
No	Notes:											

Project: 105 5th Lene W	i el e un i un eu						unc	0.5. Dat	Featu	ma ID	• 1			Star	eam Ord	0.84		
Project: I-95 5th Lane Widening Date: 4/11/2017 S						<u>`````````````````````````````````````</u>				1922	- C			511				
Crew: ET/MH					State: MD County:					Photos: 66-67 Last Flag Number: K-3B								
	ologi	Class (a)	haalt ana)		County:	Hartord				riag r	NUIL	ider: K	-3B					
Feature Hydi	1010g1	Class (C					T	• 4 4 - 4		1				17.1	1			
Tidal	1.1			rennial				ermittent		Ephemeral								
\bigcirc TNW (Subject to	ebb a		TNW - Pe		RPW – Seasonal (must					O Non-RPW draining uplands								
• flow)			(Flowing								Non-RPW erosional featureNon-RPW with abutting wetland							
	$\bigcirc \frac{\text{RPW} - \text{Perenni}}{(\text{Flowing year })}$																	
		(d)					<u> </u>				2							
<i>Describe rational</i> <i>for hydrologic class:</i> Flowing during survey									H	0				and adjacent y area)	or abutti	ng upstrear	n	
Hydrologic Connecti	Hydrologic Connectivity – Upstream: Culvert under I-95					Do	wns	tream: Outsid	e of study are	a/Waters	G	А	djacer	nt/Abutting:				
Feature Desc																		
	<u>`</u>		ct to <u>OHV</u>	/					Substr							er Type (N		
Natural Channel		;	Width: 1-					Silts		nds			luck	RB: Mov	/ed Gra	ss, Fores	st	
Artificial (man-n	/		Depth: 3'				_	Cobbles		avel		0	ther:					
✓ Manipulated (ma	n-alte		Bank Erc		•			Bedrock		ncrete	e							
Other: Moderate erosion							slo	pe: ✓ ≥1:	1 🖌 2:1		3:1	≤4	:1	^{LB:} Mov	/ed Gra	ss, Fores	st	
Notes: Flows beyond ROW fence to Waters G outside of study area																		
Weather/Pre			itions:															
		ches of							thly Dr				n	3.6				
		n Within							ICDC R						onth:	Year		
During Field Visit		st Week					mp-and-precip/climatological-rankings/index.php March 2017											
O No rain	\odot	0-0.5	0	0	0	Ο		0	0	0	_	0	C		0	0	0	
O Light rain	0	0.5-1	-6	-5	-4	-3		-2	-1	0		1	2		4	5	6	
O Heavy Rain	0	>1	Sev	vere Drou	ight	Moder	ate	Drought		Norm	al		Moo	derately Wet		Severely W	/ et	
Non-tidal tril	outary	y has: (<i>ch</i>	eck all tha	t apply;	include ph	otos for												
Bed and Banks							0	Ordinary I			lark	K.						
✓ Yes				-	d on the ba	ank		Sedimen		ion				Sediment sort	ing			
No No		~	in the cha	aracter of	soil		 Image: A start of the start of	Water sta			S. 2017			Scour				
		Shelving		Sar area				Presence						Observed/pre				
					ent, or abso	ent		Destruct				eg.		Abrupt chang	e in plant	communit	ty	
Leaf litter disturbed Presence								k line				Other:						
	Tidal tributary has: (check all that apply; include photos for each & list photo #)																	
	0	de Line			Mean H	ligh Wat	ter I	Mark indi	cated by	0			(Chemical Ch	aracteri	stics		
Oil or scum line along shore objects Survey to avai								datum					r is cle					
Fine shell or debris deposits (foreshore) Physical matrix							-			[scolored				
Physical markings/characteristics Vegetatio					tion lines	s/ch	anges in ty	nes			Oily f	film						
								anges m cy	Other:									
Tidal gauges	57 01141		, 						pes			~						

Project/Site: I-95 5th Lane Widening	City/County: <u>Harford County</u>	_ Sampling Date: <u>4/11/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: L-WET
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Depression	_ Local relief (concave, convex, none): <u>Concave</u>	Slope (%): _0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.44505	Long: <u>-76.33384</u>	Datum: WGS84
Soil Map Unit Name: KpB	NWI classifi	ication: PFO
Are climatic / hydrologic conditions on the site typical for this time of	of year? Yes No (If no, explain in I	Remarks.)
Are Vegetation, Soil, or Hydrology significa	antly disturbed? Are "Normal Circumstances"	present? Yes Vo No
Are Vegetation, Soil, or Hydrology naturall	y problematic? (If needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes _ O _ No _ O No _ O Yes _ O _ No _ O No _ O	Is the Sampled Area within a Wetland?	Yes No
Remarks:		•	
Depressional wetland beyond r	oadway embankment. Splits	the ROW fence. Appea	rs isolated. Photos 68-69

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Tim Lines (B16)
Water Marks (B1)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	bils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain 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 🔲 Depth (inches): 2	
Water Table Present? Yes 🔽 No 🛄 Depth (inches): 0	
Saturation Present? Yes Ves No Depth (inches): 0	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions) if available:
Remarks:	

Sampling Point: L-WET

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: 10x20')		Species?		Number of Dominant Species
1. Acer rubrum	30	yes	FAC	That Are OBL, FACW, or FAC: <u>5</u> (A)
2. Liquidambar styraciflua	5	no	FAC	Total Number of Dominant
3			·	Species Across All Strata: <u>5</u> (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0</u> (A/B)
6				
		= Total Cov	/er	Prevalence Index worksheet:
FOW of table assess 17.5				Total % Cover of: Multiply by:
50% of total cover: <u>17.5</u>	20% of	total cover	7.0	OBL species x 1 = 0
Sapling Stratum (Plot size: 10x20')				FACW species x 2 = <u>0</u>
1				FAC species x 3 = 0
2				FACU species x 4 = 0
3			·	UPL species x 5 = 0
4				Column Totals: (A) 0 (B)
5				
6				Prevalence Index = B/A =
	0	= Total Cov	/er	Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
50% of total cover: <u>0.0</u>	20% of	ioial cover	. 0.0	\checkmark 2 - Dominance Test is >50%
Shrub Stratum (Plot size: 10x20')	5			\square 3 - Prevalence Index is $\leq 3.0^1$
1. Liquidambar styraciflua		-	FAC	
2. Acer rubrum	2	yes	FAC	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3			·	Problematic Hydrophytic Vegetation ¹ (Explain)
4				
5				
6				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	7	= Total Cov	ver	Definitions of Five Vegetation Strata:
50% of total cover: 3.5				Definitions of Five vegetation Strata:
	20% 0	total cover		Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: <u>10x20'</u>)			FACING	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
1. Juncus effusus			FACW	(7.0 cm) of larger in diameter at breast neight (DBH).
2. Smilax rotundifolia	3	yes	FAC	Sapling – Woody plants, excluding woody vines,
3			·	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
4				
5				Shrub – Woody plants, excluding woody vines,
6				approximately 3 to 20 ft (1 to 6 m) in height.
7				Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody
9				plants, except woody vines, less than approximately 3
10				ft (1 m) in height.
			·	Woody vine – All woody vines, regardless of height.
11			·	
	0	= Total Cov	ver	
50% of total cover: <u>3.0</u>	20% of	total cover	1.2	
Woody Vine Stratum (Plot size: 10x20')				
1				
2				
3				
4			·	
5			·	Hydrophytic
	0	= Total Cov	ver	Vegetation Present? Yes No
50% of total cover: <u>0.0</u>	20% of	total cover	0.0	
Remarks: (Include photo numbers here or on a separate s	sheet.)			•

SOIL

	cription: (Describe	e to the de	pth needed to docur			or confirn	n the absence	of indicators.)
Depth (in shas)	Matrix Color (moist)	%	Redo	x Feature	<u>s</u>	_Loc ²	Tautum	Demerler
<u>(inches)</u> 0-3	10YR 3/2	<u>%</u>	Color (moist) 10YR 3/6	2	<u>Type¹</u> C	<u> </u>	Texture Clay loam	Remarks
					<u>c</u>			
3-11	10YR 5/3	30	7.5YR 4/6	10	<u> </u>		Clay loam	
	10YR 4/2	60						
¹ Type: C=Co	oncentration, D=De	pletion, RN	I=Reduced Matrix, MS	S=Masked	d Sand Gr	ains.	² Location: P	L=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indic	ators for Problematic Hydric Soils ³ :
Histosol			Dark Surface					2 cm Muck (A10) (MLRA 147)
	oipedon (A2)		Polyvalue Be				148) 🗌 🤇	Coast Prairie Redox (A16)
Black Hi	. ,		Thin Dark Su			147, 148)	Π.	(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye		(F2)			Piedmont Floodplain Soils (F19)
	d Layers (A5) uck (A10) (LRR N)		✓ Depleted Ma Redox Dark \$		5			(MLRA 136, 147) /ery Shallow Dark Surface (TF12)
	d Below Dark Surfa	ce (A11)	Depleted Dark					Other (Explain in Remarks)
	ark Surface (A12)		Redox Depre					
	lucky Mineral (S1)	(LRR N,	🔲 Iron-Mangan		,	LRR N,		
	A 147, 148)		MLRA 13					
	Bleyed Matrix (S4)		Umbric Surfa			-		licators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					etland hydrology must be present,
	l Matrix (S6) L ayer (if observed	\ .	Red Parent N	laterial (F	·21) (MLR	(A 127, 14	7) un	less disturbed or problematic.
	Layer (II observed):						
Type:	-h);						Hydric Soil	Present? Yes 💽 No 🔵
Depth (ind							Hyunc 30	
Remarks:								

Project: I-95 5th Lane Widening	Feature ID: M	Stream Order:	
Date: 4/19/2017	State: MD	Photos: 258-259	
Crew: ET/MH	County: Harford	Last Flag Number: M-4A&B (downstream of	culvərt); M-9A&B (upstream)
Feature Hydrologic Class (check one)			

Feature fryurologie Ci	ass (check one).			
Tidal	Perennial	Intermittent		Ephemeral
TNW (Subject to ebb and	TNW – Perennial	RPW – Seasonal (must	O Non-R	PW draining uplands
\smile flow)	(Flowing year round)	flow at least 3 months a	O Non-R	PW erosional feature
	RPW – Perennial	year)	O Non-R	PW with abutting wetland
	(Flowing year round)		O Non-R	PW with adjacent wetland
Describe rational Flowing	g at time of study		O Non-R	PW wetland adjacent or abutting upstream
for hydrologic class:			(outsid	le of study area)
Hydrologic Connectivity – Upstream: Outside of Study Area Downstream: Outside of Study				Adjacent/Abutting: Waters HH

Feature Description: (check all that apply)

Shape (with respect to <u>OHW</u>)				_	-	Su	bstrate		Vegetation Cover Type (MBSS)
∠	Natural Channel Shape	Width: 3-8 ft		⊻	Silts	 ✓ 	Sands	Muck	RB: Forest
	Artificial (man-made)	Depth: 2 in		<u>∕</u>	Cobbles	 ✓ 	Gravel	Other:	
 Image: A start of the start of	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock	✓	Concrete		
	Other:	Sid	le sl	ope: ✓ ≥1:1	 ✓ 	2:1 3:1	≤4:1	LB: Forest	
No	otes: Bank partially concrete,	1-95	5						

Weather/Precipitation Conditions:

	In	ches of	Monthly Drought Condition												
	Rai	n Within	NCDC Regional PDSI								Мо	nth:	Year	:	
During Field Visit	La	st Week	http://w	http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php March 2017											
• No rain	0	0-0.5	0	0	0	\odot	0	0			0	0	0	0	0
O Light rain	0	0.5-1	-6	-5	-4	-3	-2	-1	-1 0 1		2	3	4	5	6
O Heavy Rain	0	>1	Sev	vere Drou	ght	Moderate	e Drought	Normal Moderat				tely Wet	S	everely W	et

Non-tidal tributary has: (check all that apply; include photos for each & list photo #)

	Bed and Banks					C	Ordinary High Water N	[ar]	k			
\checkmark	Yes	 	Clear, natural line impres	sed	on the bank		Sediment deposition				Sediment sorting	
	No		Changes in the character of soil				Water staining				Scour	
		Shelving				Presence of flood litter/debris			✓	Observed/predicted flow events		
			Vegetation matted down, bent, or absent				Destruction of terrestri	ial v	eg.		Abrupt change in plant community	
		Leaf litter disturbed					Presence of wrack line Other:			Other:		
	Tidal tributary	ha	s: (check all that apply; ind	clud	e photos for each	1 & I	list photo #)					
	High	ı Ti	de Line		Mean High Wat	er I	Mark indicated by:				Chemical Characteristics	
	Oil or scum line al	ong	shore objects		Survey to availa	ıble	datum		Water is clear			
	Fine shell or debris	s de	posits (foreshore)		Physical markin	igs			Water	Water is discolored		
	Physical markings/	'cha	racteristics		Vegetation lines	s/ch	anges in types		Oily f	Oily film		
	Tidal gauges				-				Other	:		

Notes:

Project: I-95 5th Lane Widening		Feature ID: N	Stream Order:
Date: 4/19/2017	State: MD	Photos: 261-262	
Crew: ET/MH	County: Harford	Last Flag Number: N-4A&B	

Feature	Hydrologic	Class ((check	one):

Tidal	Perennial	Intermittent		Ephemeral
TNW (Subject to ebb and	TNW – Perennial	RPW – Seasonal (must	O Non-R	PW draining uplands
\smile flow)	(Flowing year round)	\checkmark flow at least 3 months a	O Non-R	PW erosional feature
	RPW – Perennial	year)	O Non-R	PW with abutting wetland
	(Flowing year round)		O Non-R	PW with adjacent wetland
Describe rational Some bas	se flow during site visit. Likely intercept	ts groundwater at culvert outfall.	-	PW wetland adjacent or abutting upstream
for hydrologic class:	5 , 1	5	(outsid	le of study area)
Hydrologic Connectivity –	Upstream: Waters WW	Downstream: Outside of study area,	, Waters G	Adjacent/Abutting: None

Feature Description: (check all that apply)

	Shape (with resp	ect to <u>OHW</u>)				Sul	bstrate			Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 3'			Silts		Sands		Muck	RB: Forest
	Artificial (man-made)	Depth: 2-6"			Cobbles	 ✓ 	Gravel	✓	Other:	
 ✓ 	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock		Concrete	Rip	rap	
	Other:	Minor erosion	Side	e slo	ope:	 ✓ 	2:1 3:1		≤4:1	LB: Forest
Ne	^{otes:} Emerges from culvert ca	rrying Waters WW, channe	l bed	llin	ned with rip	orap)			

Weather/Precipitation Conditions:

	In	ches of		Monthly Dro							Drought Condition					
	Rai	n Within	NCDC Regional PDSI								Мо	nth:	Year	:		
During Field Visit	La	st Week	http://w	http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php March 2017								,				
• No rain	\odot	0-0.5	0	0	0	Ο	0	0	0	0	0	0	0	0	0	
O Light rain	Ο	0.5-1	-6	-5	-4	-3	-2	-1	-1 0 1		2	3	4	5	6	
O Heavy Rain	0	>1	Sev	vere Drou	ght	Moderate	e Drought		Normal		Modera	tely Wet	S	everely W	et	

	Bed and Banks		Ordinary High Water Mark									
$\mathbf{\overline{\mathbf{A}}}$	Yes	 	Clear, natural line impres	ssed	l on the bank			Sediment deposition				Sediment sorting
	No		Changes in the character of soil			>		Water staining				Scour
		Shelving			>		Presence of flood litter/debris			✓	Observed/predicted flow events	
		Vegetation matted down, bent, or absent					Destruction of terrestria	al v	eg.		Abrupt change in plant community	
		Leaf litter disturbed			>		Presence of wrack line				Other:	
	Tidal tributary	has	s: (check all that apply; ind	clua	de photos for each	&	lis	st photo #)				
	High	Ti	de Line		Mean High Wat	er I	M	ark indicated by:				Chemical Characteristics
	Oil or scum line alo	ong	shore objects		Survey to availa	ıble	e da	atum		Wate	r is	clear
	Fine shell or debris	dep	oosits (foreshore)		Physical markin	igs				Water is discolored		
	Physical markings/	cha	racteristics		Vegetation lines/changes in types Oily f			ly film				
	Tidal gauges			Othe					Other			
No	otes:											

Project/Site: I-95 5th Lane Widening	City/County: Harford County	Sampling Date: <u>4/19/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: P-WET
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Isolated depression	_ Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>1</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45521	Long: <u>-^{-76.3097}</u>	Datum: WGS84
Soil Map Unit Name: _ ^{EsB2}	NWI clas	ssification: PFO
Are climatic / hyd <u>rolog</u> ic condi <u>tion</u> s on the site typical for this time o	of year? Yes _ 🖌 No (If no, explain	in Remarks.)
Are Vegetation, Soil, or Hydrology signification	antly disturbed? Are "Normal Circumstance	es" present? Yes 🔽 No 🛴
Are Vegetation, Soil, or Hydrology naturall	y problematic? (If needed, explain any an	swers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	Is the Sampled Area within a Wetland?	Yes No
Remarks:			
Closed depression appears to b	be isolated. Photos 269-271		

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	Roots (C3) Tim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	D Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes 🔽 No 🔲 Depth (inches): 2	
Water Table Present? Yes 🔽 No 🗌 Depth (inches): 13	
Saturation Present? Yes No Ves Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions) if available:
Describe Recorded Data (stream gauge, monitoring weil, aenal photos, previous inspect	
Remarks:	
Remarks.	

Sampling Point: P-WET

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>20x20'</u>)		Species?		Number of Dominant Species	
1. Quercus bicolor	40	yes	FACW	That Are OBL, FACW, or FAC: 3 (A	٩)
2. Nyssa sylvatica	20	yes	FAC		,
		no		Total Number of Dominant Species Across All Strata: ³ (B	21
				Species Across All Strata (B	>)
4				Percent of Dominant Species	
5	·			That Are OBL, FACW, or FAC: _100.0 (A	\/B)
6				Prevalence Index worksheet:	
	65	= Total Cov	er		
50% of total cover: 32.5	20% of	total cover:	13.0	Total % Cover of: Multiply by:	
Sapling Stratum (Plot size: 20x20')				OBL species x 1 = 0	
				FACW species x 2 = <u>0</u>	
1				FAC species x 3 = 0	
2				FACU species x 4 = 0	
3				UPL species x 5 = 0	
4					
5				Column Totals: (A) 0 (I	(D)
6				Prevalence Index = B/A =	
		= Total Cov			
		= Total Cov	er	Hydrophytic Vegetation Indicators:	
50% of total cover: <u>0.0</u>	20% of	total cover:	0.0	1 - Rapid Test for Hydrophytic Vegetation	
Shrub Stratum (Plot size: <u>20x20'</u>)				2 - Dominance Test is >50%	
1				3 - Prevalence Index is ≤3.0 ¹	
2				4 - Morphological Adaptations ¹ (Provide support	ting
				data in Remarks or on a separate sheet)	U
3				Problematic Hydrophytic Vegetation ¹ (Explain)	
4					
5				¹ Indicators of hydric soil and wetland hydrology mus	•+
6				be present, unless disturbed or problematic.	51
		= Total Cov	er	Definitions of Five Vegetation Strata:	
EOV of total powers 0.0	200/ of	total aquar	0.0	Demittions of the vegetation of ata.	
50% of total cover: <u>0.0</u>	20% of	total cover:	0.0	Tree – Woody plants, excluding woody vines,	
Herb Stratum (Plot size: 20x20')				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.	
			0.0 FAC	Tree – Woody plants, excluding woody vines,).
Herb Stratum (Plot size: 20x20')	2	yes	FAC	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.).
<u>Herb Stratum</u> (Plot size: <u>20x20'</u>) 1. <u>Smilax rotundifolia</u>	2	yes	FAC	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less).
Herb Stratum (Plot size: 20x20') 1. Smilax rotundifolia 2.	2	yes	FAC	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling – Woody plants, excluding woody vines,).
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Herb Stratum (Plot size: _20x20') 1	2	<u>yes</u>	FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody). ;
Herb Stratum (Plot size: _20x20') 1. Smilax rotundifolia	2	<u>ves</u>	FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including). ;
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Herb Stratum (Plot size: 20x20') 1. Smilax rotundifolia 2	2	<u>ves</u>	FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately). ; g / 3
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SOIL

Sampling Point: P-WET

Depth	Matrix		oth needed to docur Redo	x Feature	es			-
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	10YR 4/1	100					Fine sandy clay	
3-14	10YR 6/3	70	2.5YR 3/4	10	С	PL	Clay loam	Concentrations in matrix also
			10YR 5/6	20	С	PL		
			10111 3/0		. <u> </u>			
					·			
¹ Type: C=C	oncontration D-De	– <u> </u>	=Reduced Matrix, M	S-Masko	d Sand Gr		² Location: P	PL=Pore Lining, M=Matrix.
Hydric Soil					u Sanu Gi	airis.		ators for Problematic Hydric Soils ³ :
			Dark Surface	(\$7)				2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be		ace (S8) (I	MLRA 147.		Coast Prairie Redox (A16)
	istic (A3)		Thin Dark Su		· / ·			(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye			,,	□ F	Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma		()			(MLRA 136, 147)
2 cm Mı 🗋 🗌	uck (A10) (LRR N)		Redox Dark	Surface (I	F6)		<u> </u>	/ery Shallow Dark Surface (TF12)
Deplete	d Below Dark Surfa	ce (A11)	Depleted Da	rk Surface	e (F7)			Other (Explain in Remarks)
	ark Surface (A12)		Redox Depre					
	/lucky Mineral (S1)	LRR N,	Iron-Mangan		ses (F12) (LRR N,		
	A 147, 148)		MLRA 13				3.	
	Gleyed Matrix (S4) Redox (S5)				-			licators of hydrophytic vegetation and
	I Matrix (S6)		Piedmont Flo					etland hydrology must be present, lless disturbed or problematic.
	Layer (if observed)	•		viateriai (r		A 127, 147) un	liess disturbed of problematic.
Type:							Hydric Soil	I Present? Yes 💽 No 🔵
	ches):						Hydric Soli	
Remarks:								

Project/Site: I-95 5th Lane Widening	City/County: <u>Harford County</u>	Sampling Date: <u>4/19/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: <u>P-UPL</u>
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): <u>Hillslope</u>	_ Local relief (concave, convex, none): <u>Convex</u>	Slope (%): <u>2</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45521	Long: <u>-^{76.30976}</u>	Datum: WGS84
Soil Map Unit Name: EsB2	NWI class	sification: N/A
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes 🗹 No 🦳 (If no, explain ir	n Remarks.)
Are Vegetation, Soil, or Hydrology signification	antly disturbed? Are "Normal Circumstances	s" present? Yes 📕 No 📘
Are Vegetation, Soil, or Hydrology naturall	ly problematic? (If needed, explain any ans	wers in Remarks.)

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

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

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living R	Roots (C3) 🔲 Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) 🛛 🔲 Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	D Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes 🔲 No 🗹 Depth (inches):	\sim
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
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(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	

Sampling Point: P-UPL

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>20' R</u>)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1. Nyssa sylvatica	30	yes	FAC	That Are OBL, FACW, or FAC: <u>3</u> (A)
2. Fraxinus americana	10	no	FACU	
3. Quercus rubra	20	yes	FACU	Total Number of Dominant Species Across All Strata: 5 (B)
4. Ilex opaca		yes	FACU	
				Percent of Dominant Species
5	·		·	That Are OBL, FACW, or FAC: <u>60.0</u> (A/B)
6			·	Prevalence Index worksheet:
	85 :	= Total Cov	/er	
50% of total cover: <u>42.5</u>	20% of	total cover	: 17.0	Total % Cover of: Multiply by:
Sapling Stratum (Plot size: 20' R)				OBL species x 1 = 0
				FACW species x 2 = <u>0</u>
1				FAC species x 3 = 0
2				FACU species x 4 = <u>0</u>
3			·	UPL species x 5 = 0
4			·	Column Totals: (A) 0 (B)
5				
6				Prevalence Index = B/A =
	0 :		/er	Hydrophytic Vegetation Indicators:
				□ 1 - Rapid Test for Hydrophytic Vegetation
50% of total cover: <u>0.0</u>	20% of	total cover	:	
Shrub Stratum (Plot size: 20' R)				2 - Dominance Test is >50%
1. Acer rubrum	5	yes	FAC	3 - Prevalence Index is ≤3.0 ¹
2				4 - Morphological Adaptations ¹ (Provide supporting
3				data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation ¹ (Explain)
			·	
5				¹ Indicators of hydric soil and wetland hydrology must
6	-		- <u> </u>	be present, unless disturbed or problematic.
	5 :	= Total Cov	/er	Definitions of Five Vegetation Strata:
50% of total cover: ^{2.5}	20% of	total cover	. 1.0	
Herb Stratum (Plot size: 20' R)				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
1. Smilax rotundifolia	2	VAS	FAC	(7.6 cm) or larger in diameter at breast height (DBH).
			·	
2			·	Sapling – Woody plants, excluding woody vines,
3	·		·	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
4	·			
5				Shrub – Woody plants, excluding woody vines,
6				approximately 3 to 20 ft (1 to 6 m) in height.
7				Herb – All herbaceous (non-woody) plants, including
8.			·	herbaceous vines, regardless of size, and woody
				plants, except woody vines, less than approximately 3
9			·	ft (1 m) in height.
10			·	Woody vine – All woody vines, regardless of height.
11				woody vine – All woody vines, regardless of height.
	2 :	= Total Cov	/er	
50% of total cover: <u>1.0</u>		total aquar	. 0.4	
	20% 0	total cover	0.4	
Woody Vine Stratum (Plot size: 20' R)				
1	. <u> </u>		·	
2				
3				
4				
			·	
5			·	Hydrophytic
	0 :	= Iotal Cov	/er	Vegetation Present? Yes <u>No</u>
50% of total cover: <u>0.0</u>	20% of	total cover	: 0.0	Present? Yes Ves No
Remarks: (Include photo numbers here or on a separate	sheet.)			1

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix			Features		. 2				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	_Loc ²	<u>Texture</u>		Remarks	
0-2	5YR 3/3	100					Organic			
2-10	5YR 2.5/1	100					Sandy clay			
							·			
17 0.0				<u> </u>			2			
	oncentration, D=Dep	letion, RM=F	Reduced Matrix, MS	=Masked	Sand Gra	ains.	² Location: Pl			ria Saila ³ i
Hydric Soil				(67)					oblematic Hyd	
	(A1) pipedon (A2)		Dark Surface		o (S8) (M				(10) (MLRA 14 Redox (A16)	()
	stic (A3)		Thin Dark Su					(MLRA 147	· · ·	
	en Sulfide (A4)		Loamy Gleye			,,	🗌 Pi		odplain Soils (F	-19)
	d Layers (A5)		Depleted Mat		,			(MLRA 136		,
	ıck (A10) (LRR N)		Redox Dark S	•	,				Dark Surface (TF12)
	d Below Dark Surfac	e (A11)	Depleted Dar				<u> </u>	ther (Explai	n in Remarks)	
	ark Surface (A12)			•	,					
	/lucky Mineral (S1) (I \ 147, 148)	_KK N,	Iron-Mangane		es (F12) (L	_KK N,				
	Gleyed Matrix (S4)				MLRA 13	6, 122)	³ Indi	icators of hy	drophytic vege	tation and
	Redox (S5)		Piedmont Flo					-	ogy must be pr	
	Matrix (S6)		Red Parent N			•	•	•	ed or problemat	
	Layer (if observed):									
Type: Gra	avel								\bigcirc	\bigcirc
Depth (in	ches): _ ^{10"}						Hydric Soil	Present?	Yes <u> </u>	No <u>()</u>
Remarks:										

Project/Site: I-95 5th Lane Widening	City/County: <u>Harford County</u>	Sampling Date: <u>4/19/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: <u>S-WET</u>
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Toe of slope	Local relief (concave, convex, none): Concave	Slope (%): _0
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45262	Long: <u>-76.31757</u>	Datum: WGS84
Soil Map Unit Name:	NWI class	sification: PFO
Are climatic / hyd <u>rolog</u> ic condi <u>tions</u> on the site typica <u>l for</u> this time of		
Are Vegetation, Soil, or Hydrology signification	antly disturbed? Are "Normal Circumstance	s" present? Yes No
Are Vegetation, Soil, or Hydrology naturall	y problematic? (If needed, explain any ans	wers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes O No O Yes O No O Yes O No O	Is the Sampled Area within a Wetland?	Yes No
Remarks: Toe of slope wetland. Drains to 275-276	swale beyond row fence. Re	eceives hydrology from s	small stormwater pipe. Photos

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	Roots (C3) 🔲 Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Discrete Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _ Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
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(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	

Sampling Point: S-WET

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>20x20'</u>)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1. Quercus palustris	20	yes	FACW	That Are OBL, FACW, or FAC: (A)
2. Acer rubrum	50	yes	FAC	Total Number of Dominant
3_Fraxinus americana	10	no	FACU	Species Across All Strata: (B)
4				Percent of Dominant Species
5	·	·		That Are OBL, FACW, or FAC: <u>100.0</u> (A/B)
6				
	80	= Total Cov	er	Prevalence Index worksheet:
50% of total cover: 40.0	20% of	total cover:	16.0	Total % Cover of: Multiply by:
Sapling Stratum (Plot size:)				OBL species x 1 = 0
1,				FACW species $x = \frac{0}{2}$
2				FAC species x 3 = $\frac{0}{2}$
3				FACU species x 4 = 0
				UPL species x 5 = <u>0</u>
4				Column Totals: (A) 0 (B)
5 6.				Prevalence Index = B/A =
0	0	= Total Cov		
				Hydrophytic Vegetation Indicators:
50% of total cover: <u>0.0</u>	20% of	total cover:	0.0	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size:)	10			∠ 2 - Dominance Test is >50%
1. Typha latifolia	40	yes	OBL	1 3 - Prevalence Index is ≤3.0 ¹
2. Lysimachia nummularia	15	no	FACW	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3. Broadleaf sp.	10	no		Problematic Hydrophytic Vegetation ¹ (Explain)
4. Toxicodendron radicans	15	no	FAC	
5		·		¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
	80	= Total Cov	er	Definitions of Five Vegetation Strata:
50% of total cover: 40.0	20% of	total cover:	16.0	
Herb Stratum (Plot size:)				Tree – Woody plants, excluding woody vines,
1				approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
2				
2				Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
3	·	·		than 3 in. (7.6 cm) DBH.
4		·		Shuth Weederster eveluding weeder ince
5				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
6				
7				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
8				plants, except woody vines, less than approximately 3
9				ft (1 m) in height.
10	·	·		Woody vine – All woody vines, regardless of height.
11	·	·		Troody vine 7 in woody vines, regardless of height.
	0	= Total Cov	er	
50% of total cover: 0.0	20% of	total cover:	0.0	
Woody Vine Stratum (Plot size:)				
1. Toxicodendron radicans	10	yes	FAC	
2				
3				
4				
5				Hydrophytic
		= Total Cov		Vegetation Present? Yes No No
50% of total cover: <u>5.0</u>	20% of	total cover	2.0	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

SOIL

Sampling Point: S-WET

Depth	Matrix		Redo	x Features			_	
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc^2	Texture Sandy clay	Remarks
0-3	10YR 4/2	98	10YR 5/6	2	<u> </u>		Sandy clay	
3-13	10YR 4/1	75	10YR 5/6	20	С	M	Clay loam	
			5YR 4/4	5	С	M		
			=Reduced Matrix, M		Sand C		² Location: P	L=Pore Lining, M=Matrix.
	Indicators:			S-Maskeu	Sanu G	rains.		ators for Problematic Hydric Soils ³ :
Histoso			Dark Surface	e (S7)				2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be		e (S8) (MLRA 147.		Coast Prairie Redox (A16)
	istic (A3)		Thin Dark Su					(MLRA 147, 148)
Hydrog	en Sulfide (A4)		🔲 Loamy Gleye	ed Matrix (F	2)		П Р	Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma	. ,			_	(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark					/ery Shallow Dark Surface (TF12)
	d Below Dark Surfa	ace (A11)	Depleted Da					Other (Explain in Remarks)
	ark Surface (A12) //ucky Mineral (S1)	(I RR N	Redox Depre		,			
	A 147, 148)		MLRA 13		3 (1 12)	(LIXIX IX,		
	Gleyed Matrix (S4)		Umbric Surfa		ILRA 1	36, 122)	³ Ind	licators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo	odplain So	ils (F19) (MLRA 14	I8) we	etland hydrology must be present,
	d Matrix (S6)		Red Parent N	Material (F2	21) (ML F	RA 127, 147	7) un	less disturbed or problematic.
Restrictive	Layer (if observed	: :						
Туре:								
Depth (in	iches):						Hydric Soil	Present? Yes 🚺 No 🔵
Remarks: S	ome traces of p	petroleum	may be present.					
-								

Project/Site: 1-95 5th Lane Widening	City/County: <u>Harford County</u>	Sampling Date: <u>5/4/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: <u>S-X-UPL</u>
Investigator(s): ET/MRS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Roadway slope	Local relief (concave, convex, none): <u>Convex</u>	Slope (%): <u>5</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45294	Long:76.31716	Datum: WGS84
Soil Map Unit Name: DcB	NWI classi	fication: <u>N/A</u>
Are climatic / hydrologic conditions on the site typical for this time o	of year? Yes No (If no, explain in	Remarks.)
Are Vegetation, Soil, or Hydrology significa	ntly disturbed? Are "Normal Circumstances"	" present? Yes 📕 No 📕
Are Vegetation, Soil, or Hydrology naturally	y problematic? (If needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes O No O Yes O No O Yes O No O	Is the Sampled Area within a Wetland?	Yes No No			
Remarks:						
Roadway slope. Two vegetative species could not be determined, but appeared to be upland.						

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) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3)	
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain 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 Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Z Depth (inches):	Wetland Hydrology Present? Yes No
Saturation Present? Yes No Ves Depth (inches):	
Saturation Present? Yes No Ves Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	
Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	

Sampling Point: S-X-UPL

	AL 1.1	D .		
<u>Tree Stratum</u> (Plot size: ^{5'r})		Dominan Species	t Indicator	Dominance Test worksheet:
				Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6			_	
		= Total Co	ver	Prevalence Index worksheet:
				Total % Cover of:Multiply by:
50% of total cover: <u>0.0</u>	20% of	f total cove	r: <u>0.0</u>	OBL species x 1 = 0
<u>Sapling Stratum</u> (Plot size: <u>5'r</u>)				
1				FACW species x 2 = 0
				FAC species x 3 = 0
2				FACU species x 4 = <u>0</u>
3				UPL species x 5 = 0
4				
				Column Totals: (A) 0 (B)
5				
6	·	·		Prevalence Index = B/A =
	0	= Total Co	ver	Hydrophytic Vegetation Indicators:
	000/	finial		1 - Rapid Test for Hydrophytic Vegetation
50% of total cover: <u>0.0</u>	20% 0	r total cove	r: <u>0.0</u>	
Shrub Stratum (Plot size: ^{5'r})				2 - Dominance Test is >50%
1				3 - Prevalence Index is ≤3.0 ¹
2				4 - Morphological Adaptations ¹ (Provide supporting
				data in Remarks or on a separate sheet)
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				
5				
6				¹ Indicators of hydric soil and wetland hydrology must
0	-			be present, unless disturbed or problematic.
		= Total Co	over	Definitions of Five Vegetation Strata:
50% of total cover: 0.0				
50% of total cover: <u>0.0</u>				Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: <u>5'r</u>)	20% of	f total cove	r: <u>0.0</u>	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
<u>Herb Stratum</u> (Plot size: <u>5'r</u>) 1. Festuca sp.	20% of	f total cove	r: <u>0.0</u>	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: <u>5'r</u>)	20% of	f total cove	r: <u>0.0</u>	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
Herb Stratum (Plot size: <u>5'r</u>) 1. Festuca sp. 2. Rubus sp.	20% of 	f total cove	r: <u>0.0</u>	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines,
<u>Herb Stratum</u> (Plot size: <u>5'r</u>) 1. Festuca sp.	20% of 	f total cove	r: <u>0.0</u>	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
Herb Stratum (Plot size: <u>5'r</u>) 1. Festuca sp. 2. Rubus sp.	20% of 	f total cove	r: <u>0.0</u>	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Herb Stratum (Plot size: <u>5'r</u>) 1. Festuca sp. 2. Rubus sp.	20% of 20 5	f total cove	r <u>; 0.0</u> FACU	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines,
Herb Stratum (Plot size: <u>5'r</u>) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4 5	20% of 	f total cove yes yes no	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Herb Stratum (Plot size: <u>5'r</u>) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 20 5	f total cove yes no	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
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Herb Stratum (Plot size: 5'r) 1. Festuca sp.	20% of 	f total cove yes no 	r: 0.0 FACU	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
Herb Stratum (Plot size: 5'r) 1. Festuca sp.) 2. Rubus sp.	20% of 	f total cove yes no 	r: 0.0 FACU	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 	f total cove yes 	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
Herb Stratum (Plot size: 5'r) 1. Festuca sp.) 2. Rubus sp.	20% of 	f total cove yes 	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 70 20 5	f total cove yes 	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 5'r) 1. Festuca sp.) 2. Rubus sp.	20% of 70 20 5	f total cove yes 	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 	f total cove <u>yes</u> <u>no</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4. 5. 6. 7. 8. 9. 10. 11. 50% of total cover: 47.5	20% of 	f total cove <u>yes</u> <u>no</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of _	f total cove <u>yes</u> <u>no</u> <u>no</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
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Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 20 5 	f total cove <u>yes</u> <u>no</u> <u>no</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 	f total cove <u>yes</u> <u>no</u> <u>no</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 	f total cove <u>yes</u> <u>no</u> <u>no</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u> <u>-</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
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Herb Stratum (Plot size: <u>5'r</u>) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4. 5. 6. 7. 8. 9. 10. 11. 50% of total cover: <u>47.5</u> Woody Vine Stratum (Plot size: <u>5'r</u>) 1. 2. 3. 4. 5.	20% of 	f total cove <u>yes</u> <u>no</u> <u>no</u> <u>ves</u> <u>no</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
Herb Stratum (Plot size: 5'r) 1. Festuca sp. 2. Rubus sp. 3. Lonicera japonica 4	20% of 	f total cove <u>yes</u> <u>no</u> <u>no</u> <u>ves</u> <u>no</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u> <u>r</u>	r: 0.0	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
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US Army Corps of Engineers

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	indicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix			x Feature						
<u>(inches)</u>	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-5	7.5YR 5/4	100					Sandy loam	Fill mat	erial	
5-10	7.5YR 5/8	100					Loam	Fill materi	al, contains mic	a
10-14	7.5YR 5/6	100					Loam	Some f	ine gravel	
·										
		pletion, RM=	Reduced Matrix, M	S=Masked	d Sand Gra	ains.			ng, M=Matrix.	
Hydric Soil			_						roblematic Hyd	
Histosol	· /		Dark Surface	. ,					A10) (MLRA 14	7)
	oipedon (A2)		Polyvalue Be				148) <u> </u> C		e Redox (A16)	
Black Hi			Thin Dark Su	•	<i>,</i> .	47, 148)	— -	(MLRA 14		
	en Sulfide (A4)				(F2)				odplain Soils (l	-19)
	d Layers (A5)		Depleted Ma		-0)			(MLRA 13		
	ıck (A10) (LRR N) d Below Dark Surfad	(A11)	Redox Dark						/ Dark Surface in in Remarks)	(1712)
	ark Surface (A12)		Redox Depre						in in Remarks)	
	lucky Mineral (S1) (LRR N.			,	LRR N.				
	A 147, 148)	,	MLRA 13		···/	,				
	Gleyed Matrix (S4)		Umbric Surfa	,	(MLRA 13	6, 122)	³ Ind	licators of h	ydrophytic vege	tation and
	Redox (S5)		Piedmont Flo						logy must be pi	
Stripped	Matrix (S6)		Red Parent N	Aaterial (F	21) (MLR	A 127, 147			ed or problema	
Restrictive	Layer (if observed)):								
Туре:									\cap	
Depth (in	ches):						Hydric Soil	Present?	Yes <u> </u>	No <u> </u>
Remarks:							_			

Project/Site: I-95 5th Lane Widening	City/County: Harford County	Sampling Date: <u>4/26/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: <u>T-WET</u>
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Drainage swale	Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>2</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45649	Long: -76.31025	Datum: WGS84
Soil Map Unit Name: EsB2	NWI classifi	cation: PEM
Are climatic / hydrologic conditions on the site typical for this time of		
Are Vegetation, Soil, or Hydrology significa	antly disturbed? Are "Normal Circumstances"	present? Yes L
Are Vegetation, Soil, or Hydrology naturally	y problematic? (If needed, explain any answe	ers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes O No O Yes O No O Yes O No O	Is the Sampled Area within a Wetland?	Yes No
Remarks:			
Drainage swale originates from	pipe outfall to the north. No	observed connection to	Waters. Photos 292-293

Wetland Hydrology Indicators: Secondary Indicators (minir	num of two required)
Primary Indicators (minimum of one is required; check all that apply)	6)
Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Co	oncave Surface (B8)
✓ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1) ☐ Drainage Patterns (B10)))
Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) I Moss Trim Lines (B16)	
Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Tab	le (C2)
Sediment Deposits (B2)	
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on A	erial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Pla	ants (D1)
Iron Deposits (B5)	02)
Inundation Visible on Aerial Imagery (B7)	
Water-Stained Leaves (B9) Microtopographic Relie	f (D4)
Aquatic Fauna (B13)	
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes <u>Ves</u> No <u>Depth</u> (inches): <u>0</u>	\sim
Saturation Present? Yes 🔽 No 🔲 Depth (inches): 0 Wetland Hydrology Present? Yes	● No ●
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), il available:	
Remarks:	

Sampling Point: T-WET

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 4'x15')		Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant
3			·	Species Across All Strata: 2 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100.0 (A/B)
6				Decoder on the decouver dark a sta
	0	= Total Cov	/er	Prevalence Index worksheet:
50% of total cover: <u>0.0</u>	20% of	total cover	0.0	Total % Cover of: Multiply by:
Sapling Stratum (Plot size: 4'x15')				OBL species $x = 1 = 0$
1				FACW species $x 2 = 0$
2				FAC species $x = 0$
3				FACU species $x 4 = 0$
4				UPL species x 5 = $\frac{0}{2}$
5				Column Totals: (A) 0 (B)
6.				Prevalence Index = B/A =
	0	= Total Cov	/er	Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
50% of total cover: <u>0.0</u>	20% of	total cover	. 0.0	\checkmark 2 - Dominance Test is >50%
Shrub Stratum (Plot size: <u>4'x15'</u>) 1 Baccharis halimifolia	15			\square 3 - Prevalence Index is $\leq 3.0^{1}$
2				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3			·	Problematic Hydrophytic Vegetation ¹ (Explain)
4				
5			·	¹ Indicators of hydric soil and wetland hydrology must
6			·	be present, unless disturbed or problematic.
		= Total Cov	ver	Definitions of Five Vegetation Strata:
50% of total cover: 0.0	20% of	total cover	0.0	
Herb Stratum (Plot size: _4'x15')				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
1. Typha angustifolia	80	yes	OBL	(7.6 cm) or larger in diameter at breast height (DBH).
2. Multiflora rose	10	no	FACU	Sapling – Woody plants, excluding woody vines,
3. Lonicera japonica	2	no	FACU	approximately 20 ft (6 m) or more in height and less
4.				than 3 in. (7.6 cm) DBH.
5				Shrub – Woody plants, excluding woody vines,
6				approximately 3 to 20 ft (1 to 6 m) in height.
7				Harb All borbasseus (non woody) plants, including
8.			·	Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody
			·	plants, except woody vines, less than approximately 3
9			·	ft (1 m) in height.
10			·	Woody vine – All woody vines, regardless of height.
11			·	
	92	= Total Cov	ver	
50% of total cover: <u>46.0</u>	20% of	total cover	18.4	
Woody Vine Stratum (Plot size: 4'x15')				
1				
2				
3				
4				
5				
		= Total Cov	/er	Hydrophytic Vegetation
				Vegetation Present? Yes <u>No</u> No
50% of total cover: 0.0		total cover	0.0	
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redo	K Features	s			
<u>(inches)</u>	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 4/2	95	7.5YR 4/6	5	С	M	Sandy clay	
2-8	10YR 5/1	90	7.5YR 4/6	10	С	Μ	Clay loam	Gravel refusal
						- <u> </u>		
·								
1							2	
		oletion, RM	=Reduced Matrix, MS	S=Masked	Sand Gr	ains.		L=Pore Lining, M=Matrix.
Hydric Soil								ators for Problematic Hydric Soils ³ :
Histosol			Dark Surface					cm Muck (A10) (MLRA 147)
	oipedon (A2)		Polyvalue Be		. , .		148) <u> </u> C	coast Prairie Redox (A16)
Black Hi			L Thin Dark Su			147, 148)	_	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye		F2)		L P	iedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Mat					(MLRA 136, 147)
	ick (A10) (LRR N)		Redox Dark S	•	,			ery Shallow Dark Surface (TF12)
	d Below Dark Surfac	ce (A11)	Depleted Dar					other (Explain in Remarks)
	ark Surface (A12)		Redox Depre					
	1ucky Mineral (S1) (LRR N,			es (F12) (LRR N,		
	A 147, 148)		MLRA 130			0. 400)	31	instant of builden built an antation and
	Bleyed Matrix (S4)		Umbric Surfa			-		icators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					tland hydrology must be present,
	Matrix (S6)		Red Parent M	laterial (F	21) (WLR	A 127, 14	7) un	less disturbed or problematic.
	Layer (if observed)	:						
Type: <u>G</u> r								
Depth (ind	ches): <u>8</u>						Hydric Soil	Present? Yes 🕑 No 🕖
Remarks:								

Project/Site: I-95 5th Lane Widening	City/County: Harford County	Sampling Date: <u>4/26/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: <u>T-UPL</u>
Investigator(s): ET/MH	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Roadway slope	_ Local relief (concave, convex, none): <u>Convex</u>	Slope (%): <u>3</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45648	Long: <u>-76.31034</u>	Datum: WGS84
Soil Map Unit Name: _ ^{EsB2}	NWI class	sification: <u>N/A</u>
Are climatic / hyd <u>rolog</u> ic condi <u>tions</u> on the site typical for this time		
	antly disturbed? Are "Normal Circumstances	s" present? Yes No
Are Vegetation, Soil, or Hydrology naturall	ly problematic? (If needed, explain any ans	wers in Remarks.)

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

Yes No Yes No Yes No	Is the Sampled Area within a Wetland?	Yes No No
ier to swale		
	Yes No Yes No	Yes No 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)
Surface Water (A1)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) 🔲 Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	oils (C6) 🔄 Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	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 Depth (inches):	
Water Table Present? Yes <u>V</u> No <u>Depth</u> (inches): <u>6</u>	
Saturation Present? Yes No Z Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	

Sampling Point: T-UPL

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>10'x10'</u>)		Species?		Number of Dominant Species	
1				That Are OBL, FACW, or FAC: (A	()
2				Total Number of Dominant	
3				Species Across All Strata: (B	3)
4				Percent of Dominant Species	
5				That Are OBL, FACW, or FAC: (A	√B)
6				Prevalence Index worksheet:	
	0	= Total Co	/er	Total % Cover of: Multiply by:	
50% of total cover: <u>0.0</u>	20% of	f total cover	:0.0	OBL species x 1 = 0	
Sapling Stratum (Plot size: 10'x10')				FACW species x 2 = 0	
1				FAC species $x = 0$	
2				FACU species x 3 FACU species x 4 = 0	
3				UPL species VPL species	
4					
5				Column Totals: (A) 0 ((D)
6				Prevalence Index = B/A =	
	0	= Total Co	/er	Hydrophytic Vegetation Indicators:	
50% of total cover: <u>0.0</u>				1 - Rapid Test for Hydrophytic Vegetation	
Shrub Stratum (Plot size: <u>10'x10'</u>)	2070 0			2 - Dominance Test is >50%	
				□ 3 - Prevalence Index is ≤3.0 ¹	
1				↓	tina
2				data in Remarks or on a separate sheet)	5
3				Problematic Hydrophytic Vegetation ¹ (Explain)	
4					
5 6				¹ Indicators of hydric soil and wetland hydrology mus	st
0		= Total Co		be present, unless disturbed or problematic.	
				Definitions of Five Vegetation Strata:	
50% of total cover: <u>0.0</u>	20% of	f total cover	. 0.0	Tree – Woody plants, excluding woody vines,	
Herb Stratum (Plot size: 10'x10')	70			approximately 20 ft (6 m) or more in height and 3 in.	
1. Festuca sp.		yes		(7.6 cm) or larger in diameter at breast height (DBH).
2. Taraxacum officinale	5		FACU	Sapling – Woody plants, excluding woody vines,	
3. Galium boreale	15	no	FACU	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.	
4	·	·	·		
5		·	·	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.	
6			·		
7		·		Herb – All herbaceous (non-woody) plants, including	g
8		·	- <u> </u>	herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately	/ 3
9			·	ft (1 m) in height.	
10		·	·	Woody vine – All woody vines, regardless of height	ł
11					
	90	= Total Co	/er		
50% of total cover: 45.0	20% of	f total cover	: 18.0		
Woody Vine Stratum (Plot size: 10'x10')					
1					
2		. <u> </u>			
3					
4					
5					
		= Total Co	/er	Hydrophytic Vegetation	
50% of total cover: <u>0.0</u>				Present? Yes <u>No</u> No	
Remarks: (Include photo numbers here or on a separate s			•		

Festuca sp. could not be identified, but it resembles the Festuca located up high in the landscape.

SOIL

Project: I-95 5th Lane Widening	Feature ID: UStream Order:						
Date: 4/26/2017	State: MD	Photos: 304-305					
Crew: ET/MH	County: Harford	Last Flag Number: U-7A, U-9B					

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral			
TNW (Subject to ebb and	TNW – Perennial	RPW – Seasonal (must	O Non-RPW draining uplands			
\smile flow)	(Flowing year round)	flow at least 3 months a	O Non-RPW erosional feature			
	RPW – Perennial	year)	O Non-RPW with abutting wetland			
	(Flowing year round)		O Non-RPW with adjacent wetland			
Describe rational Known	as Winters Run, blue line strea	am	O Non-RPW wetland adjacent or abutting upstream			
for hydrologic class:			(outside of study area)			
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside of study	area Adjacent/Abutting: Waters V, W, FF			

Feature Description: (check all that apply)

	Shape (with resp			-	Su	bstrate	Vegetation Cover Type (MBSS)			
∠	Natural Channel Shape	Width: 30 ft		⊻	Silts	 ✓ 	Sands		Muck	RB: Forest, Road
	Artificial (man-made)	Depth: 6 in - 3 ft		∠	Cobbles	 ✓ 	Gravel		Other:	
∠	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock		Concrete		_	
	Other:	Stable	Sid	e sl	ope:	🗸	2:1 3:1	LB: Forest		
Ne	ptes: Concrete banks under bridge. Sediment	and cobble accumulation present along cen	ter pier. Water appears to flow over this area during high flow events.							

Weather/Precipitation Conditions:

Inches of Monthly Drought Condition																	
		Rai	n Within		NCDC Regional PDSI Month: Year:												
During Field Visit Last We				http://w	http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php								Ma	rch	2017	7	
\odot	No rain	0	0-0.5	0	0	0	\odot	0	0	0 0		0 0 0 0		0	0	0	0
0	Light rain	0	0.5-1	-6	-5	-4 -3 -2			-1 0 1		2	3	4	5	6		
0	Heavy Rain	\odot	>1	Sev	vere Drou	ght	Moderate Drought Normal Moderately Wet			nt Normal Moder		S	everely W	et			

	Bed and Banks	s Ordinary High Water Mark										
\checkmark	Yes	Clear, natural line impressed on the bank				 ✓ 		Sediment deposition				Sediment sorting
	No	Changes in the character of soil					Water staining				Scour	
			Shelving			✓		Presence of flood litter	/del	bris	 Image: A start of the start of	Observed/predicted flow events
			Vegetation matted down,	ber	nt, or absent			Destruction of terrestria	al v	'eg.		Abrupt change in plant community
	Leaf litter disturbed Presence of wrack line						Other:					
	Tidal tributary	^y ha	s: (check all that apply; ind	clua	le photos for each	1 &	lis	st photo #)				
	High	ı Ti	de Line		Mean High Water Mark indicated by:			Chemical Characteristics				
	Oil or scum line al				Survey to availa	able	e d	atum		Water is clear		
	Fine shell or debris	s de	posits (foreshore)	Physical markings				Water	Water is discolored			
Physical markings/characteristics			Vegetation lines/changes in types Oi					Oily f	Oily film			
Tidal gauges				_	Other			Other	er:			
Ne	otes:											

Project: I-95 5th Lane Widening	Feature ID: V Stream Order: 1						
Date: 4/26/2017	State: MD	Photos: 300-301					
Crew: ET/MH	Last Flag Number: V-17A&B						

Feature	Hydrologic	Class (check	one):

Tidal	Perennial	Intermittent	Ephemeral				
TNW (Subject to ebb and	TNW – Perennial	RPW – Seasonal (must	O Non-RPW draining uplands				
✓ _{flow)}	(Flowing year round)	\checkmark flow at least 3 months a	O Non-RPW erosional feature				
	RPW – Perennial	year)	O Non-RPW with abutting wetland				
	(Flowing year round)		O Non-RPW with adjacent wetland				
Describe rational Originates	outside of ROW fence. Receives hydrol	ogy from adjacent wetlands/seeps	O Non-RPW wetland adjacent or abutting upstream				
for hydrologic class:	,		(outside of study area)				
Hydrologic Connectivity –	Upstream: None	Downstream: Waters U	Adjacent/Abutting: Wetlands S, X				

Feature Description: (check all that apply)

	Shape (with resp				Sul	bstrate	Vegetation Cover Type (MBSS)		
∠	Natural Channel Shape	Width: 2-5 ft			Silts	 ✓ 	Sands	Muck	RB: Forest, mowed grass
	Artificial (man-made)	Depth: 6 in			Cobbles	 ✓ 	Gravel	Other:	, j
	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock		Concrete		
	Other:	Stable	Sid	e sle	ope:		2:1 3:1	LB: Forest	
No	tes: Toe of slope drainage								

Weather/Precipitation Conditions:

		In	iches of			Monthly Drought Condition											
		Rai	n Within				NCDC Regional PDSI							nth:	Year	:	
During Field	Visit	La	st Week	http://w	www.ncdd	.noaa.go	ov/temp-and-precip/climatological-rankings/index.php March								2017	2017	
• No rain		0	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0	
O Light rai	n	Ο	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
O Heavy R	ain	\odot	>1	Sev	vere Drou	ght	Moderate	lerate Drought Normal Moderately Wet Severely							everely W	et	

Non-tidal tributary has: (check all that apply; include photos for each & list photo #)

	Bed and Banks				(Drdinary High Water M	/Iarl	ζ		
\checkmark	Yes	>	Clear, natural line impres	sed on the bank		Sediment deposition				Sediment sorting
	No		Changes in the character	of soil		Water staining				Scour
			Shelving		✓	Presence of flood litter	r/deb	oris 💽	✓	Observed/predicted flow events
			Vegetation matted down,	bent, or absent		Destruction of terrestr	ial v	eg.		Abrupt change in plant community
		>	Leaf litter disturbed		 Image: A start of the start of	Presence of wrack line	;			Other:
	Tidal tributary	ha	s: (check all that apply; ind	clude photos for eacl	1 &	list photo #)				
	High	ı Ti	de Line	Mean High Wa	ter I	Mark indicated by:				Chemical Characteristics
	Oil or scum line al	ong	shore objects	Survey to availa	able	datum		Water	is	clear
	Fine shell or debris	s dej	posits (foreshore)	Physical markin	ıgs			Water	is (discolored
	Physical markings/	'cha	racteristics	Vegetation line	s/ch	anges in types		Oily film		
	Tidal gauges							Other:		

Notes:

Project: I-95 5th Lane Widening		Feature ID: W	Stream Order:
Date: 4/26/2017	State: MD	Photos: 302-303	
Crew: et/mh	County: Harford	Last Flag Number: W-2A&B	

	Feature	Hydrologic	Class ((check one):
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Tidal	Perennial	Intermittent	Ephemeral
$\bigcup_{n \to \infty} TNW (Subject to ebb and$	TNW – Perennial	RPW – Seasonal (must	O Non-RPW draining uplands
∪ _{flow)}	(Flowing year round)	\checkmark flow at least 3 months a	O Non-RPW erosional feature
	RPW – Perennial	year)	O Non-RPW with abutting wetland
	(Flowing year round)		O Non-RPW with adjacent wetland
Describe rational Elowing	during survey, visible on aeri	alimagony	O Non-RPW wetland adjacent or abutting upstream
for hydrologic class:	during survey, visible on aeri	arimagery	(outside of study area)
Hydrologic Connectivity –	Upstream: Outside of Study Area	Downstream: Waters U	Adjacent/Abutting: None

Feature Description: (check all that apply)

	Shape (with resp	ect to <u>OHW</u>)				Sul	bstrate		Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 1-4 ft			Silts	~	Sands	Muck	RB: Forest
	Artificial (man-made)	Depth: 2-4in			Cobbles		Gravel	Other:	
	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock		Concrete	-	
	Other:	Stable	Sid	e sle	ope:	 ✓ 	2:1 3:1	≤4:1	LB: Forest
Ne	otes: Exposed roots								

Weather/Precipitation Conditions:

	In	iches of			Monthly Drought Condition										
	Rai	n Within				NCDC Regional PDSI							nth:	Year:	
During Field Visit	La	st Week	http://w	www.ncdd	.noaa.go	0								2017	7
O No rain	Ο	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0
O Light rain	Ο	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
O Heavy Rain	\odot	>1	Sev	vere Drou	ght	Moderate	erate Drought Normal Moderately Wet Severely							everely W	et

	Bed and Banks					(Ordinary High Water N	lar	k		
\checkmark	Yes	~	Clear, natural line impres	ssed	on the bank		Sediment deposition				Sediment sorting
	No		Changes in the character	of s	oil		Water staining				Scour
			Shelving				Presence of flood litter	/de	bris 🔽	∕	Observed/predicted flow events
			Vegetation matted down,	, ber	nt, or absent		Destruction of terrestri	al v	veg.		Abrupt change in plant community
			Leaf litter disturbed				Presence of wrack line				Other:
	Tidal tributary	' ha	s: (check all that apply; in	clua	le photos for each	&	list photo #)				
	High	ı Ti	de Line		Mean High Wate	er I	Mark indicated by:				Chemical Characteristics
	Oil or scum line al	ong	shore objects		Survey to availa	ble	datum		Water i	is (clear
	Fine shell or debris	s de	posits (foreshore)		Physical marking	gs			Water i	is (discolored
	Physical markings/	′cha	racteristics		Vegetation lines	/ch	anges in types		Oily fil	lm	
	Tidal gauges				_				Other:		
Ne	otes:										

Project/Site: I-95 5th Lane Widening	City/County: <u>Harford County</u>	_ Sampling Date: <u>5/4/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: X-WET
Investigator(s): ET/MRS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Toe of roadway slope	Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>0</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45299	Long: <u>-76.31681</u>	Datum: WGS84
Soil Map Unit Name: DcB	NWI classif	ication: <u>PFO</u>
Are climatic / hyd <u>rolog</u> ic condi <u>tion</u> s on the site typica <u>l for</u> this time o Are Vegetation, Soil, or Hydrology significa	of year? Yes _ / No _ (If no, explain in antly disturbed? Are "Normal Circumstances"	
Are Vegetation, Soil, or Hydrology naturally	y problematic? (If needed, explain any answ	ers in Remarks.)

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

Yes No Yes No Yes No	Is the Sampled Area within a Wetland?	Yes No
dway embankment. May cor	ntinue beyond row fence	e. Photos 324-325
	-	
	Yes O No O	Yes O No O within a Wetland?

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) 🔲 Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain 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 Depth (inches):	
Water Table Present? Yes _ No _ Z Depth (inches):	
Saturation Present? Yes No Z Depth (inches):	Wetland Hydrology Present? Yes No
Saturation Present? Yes No Z Depth (inches):	
Saturation Present? Yes No Z Depth (inches):	
Saturation Present? Yes No Z Depth (inches):	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	
Saturation Present? Yes No Zer Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	

Sampling Point: X-WET

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>10x20'</u>)		Species?		Number of Dominant Species
1. Fraxinus pennsylvanica	30	yes	FACW	That Are OBL, FACW, or FAC: 5 (A)
2				
3				Total Number of Dominant Species Across All Strata: 6 (B)
4				Percent of Dominant Species
5		·		That Are OBL, FACW, or FAC: 83.3 (A/B)
6				Prevalence Index worksheet:
	30	= Total Co	ver	
50% of total cover: <u>15.0</u>	20% of	total cover	. 6.0	
Sapling Stratum (Plot size: 10x20')			·	OBL species x 1 = 0
				FACW species x 2 = <u>0</u>
1				FAC species x 3 = <u>0</u>
2				FACU species x 4 = 0
3				UPL species x 5 = 0
4				Column Totals: (A) 0 (B)
5				$\begin{array}{c} \text{Column rotals.} \\ \hline \end{array} \qquad (A) \underbrace{\bullet} \qquad (B) \\ \hline \end{array}$
6				Prevalence Index = B/A =
	0	- Total Co		Hydrophytic Vegetation Indicators:
50% of total cover: <u>0.0</u>	20% of	total cover	: <u>0.0</u>	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size: 10x20')				2 - Dominance Test is >50%
1. <u>Rosa multiflora</u>	5	yes	FACU	\Box 3 - Prevalence Index is $\leq 3.0^1$
2				4 - Morphological Adaptations ¹ (Provide supporting
				data in Remarks or on a separate sheet)
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				
5				¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
	5	= Total Co	ver	Definitions of Five Vegetation Strata:
50% of total cover: ^{2.5}				Definitions of Five Vegetation Strata:
50% of total cover: <u>2.5</u>				Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: 10x20')	20% of	total cover	- <u>:</u> 1.0	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
Herb Stratum (Plot size: <u>10x20'</u>) 1. Agrostis gigantea	20% of 30	total cover	<u>FACW</u>	Tree – Woody plants, excluding woody vines,
<u>Herb Stratum</u> (Plot size: <u>10x20'</u>) 1. Agrostis gigantea 2. Phragmites australis	20% of 	total cover <u>ves</u> no	FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines,
Herb Stratum (Plot size: <u>10x20'</u>) 1. Agrostis gigantea	20% of 30	total cover	<u>FACW</u>	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
<u>Herb Stratum</u> (Plot size: <u>10x20'</u>) 1. Agrostis gigantea 2. Phragmites australis	20% of 	total cover <u>ves</u> no	FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines,
Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea	20% of 30 10 20	total cover <u>Ves</u> <u>no</u> <u>yes</u>	FACW FACW FACW	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea 4. Toxicodendron radicans	20% of 30 10 20 25	ves no yes yes	FACW FACW FACW FACW FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea 4. Toxicodendron radicans 5. Parthenocissus quinquefolia 6. Lonicera japonica	20% of <u>30</u> <u>10</u> <u>20</u> <u>25</u> <u>10</u> <u>10</u>	ves no yes ves no no	FACW FACW FACW FAC FAC FACU FACU	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea 4. Toxicodendron radicans 5. Parthenocissus quinquefolia 6. Lonicera japonica 7. Dichanthelium clandestinum	20% of <u>30</u> <u>10</u> <u>20</u> <u>25</u> <u>10</u> <u>10</u> <u>10</u> <u>10</u>	total cover <u>ves</u> <u>ves</u> <u>ves</u> <u>no</u> <u>no</u> <u>no</u>	FACW FACW FACW FAC FACU FACU FACU FACU	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including
Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea 4. Toxicodendron radicans 5. Parthenocissus quinquefolia 6. Lonicera japonica 7. Dichanthelium clandestinum 8.	20% of <u>30</u> <u>10</u> <u>20</u> <u>25</u> <u>10</u> <u>10</u> <u>10</u> <u>10</u> <u>10</u>	ves no yes ves no no no	FACW FACW FACW FAC FAC FAC FACU FAC FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
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Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea 4. Toxicodendron radicans 5. Parthenocissus quinquefolia 6. Lonicera japonica 7. Dichanthelium clandestinum 8.	20% of 30 10 20 25 10 10 10 10 	ves no yes ves no no no	FACW FACW FACW FAC FAC FACU FACU FACU FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
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Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea 4. Toxicodendron radicans 5. Parthenocissus quinquefolia 6. Lonicera japonica 7. Dichanthelium clandestinum 8. 9. 10.	20% of <u>30</u> <u>10</u> <u>20</u> <u>25</u> <u>10</u> <u>10</u> <u>10</u> <u></u> <u></u>	total cover <u>Ves</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No</u> <u>No </u>	FACW FACW FACW FAC FAC FACU FACU FACU FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Herb Stratum (Plot size: 10x20') 1. Agrostis gigantea 2. Phragmites australis 3. Carex alopecoidea 4. Toxicodendron radicans 5. Parthenocissus quinquefolia 6. Lonicera japonica 7. Dichanthelium clandestinum 8	20% of 30 10 20 25 10 10 10 10 10 10 10 115	ves no ves no no no Total Cov	FACW FACW FACW FAC FACU FACU FACU FAC FAC	 Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
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SOIL	
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Profile Desc	cription: (Describe	to the dep	oth needed to docur	nent the	indicator	or confirr	n the absence	of indicator	rs.)	
Depth	Matrix		Redo	x Feature	s					
<u>(inches)</u>	Color (moist)	%	Color (moist)	%	Type ¹	_Loc ²	Texture		Remarks	
0-3	10YR 4/2	90	7.5YR 4/4	10	С	PL	Loam			
3-6	10YR 4/2	70	7.5YR 4/4	30	С	М	Sandy loam			
6-10	10YR 4/1	65	7.5YR 4/3	35	С	M	Loam	Some fil	l inclusions	
10-13	10YR 5/1	70	7.5YR 4/4	30	С	PL	Silt loam			
						·				
						·				
						·				
1 Type: C=C		letion RM	=Reduced Matrix, MS			 aine	² Location: P	=Pore Linin	a M=Matrix	
Hydric Soil						ams.			oblematic Hyd	ric Soils ³ :
Histosol			Dark Surface	(S7)					10) (MLRA 14)	
	oipedon (A2)		Polyvalue Be		ce (S8) (N	/ILRA 147		•	Redox (A16)	• ,
	istic (A3)		Thin Dark Su				, с , с	(MLRA 147		
	en Sulfide (A4)		Loamy Gleye			,,	Пе	•	odplain Soils (F	-19)
	d Layers (A5)		Depleted Ma		(/			(MLRA 136		
	uck (A10) (LRR N)		Redox Dark		-6)				Dark Surface (TF12)
	d Below Dark Surfac	e (A11)	Depleted Da						n in Remarks) `	,
	ark Surface (A12)	、	Redox Depre						,	
	/lucky Mineral (S1) (LRR N,	🔲 Iron-Mangan	•	,	LRR N,				
	A 147, 148)		MLRA 13							
Sandy G	Gleyed Matrix (S4)		🔲 Umbric Surfa	ce (F13)	(MLRA 13	86, 122)	³ Ind	licators of hy	drophytic vege	tation and
🔲 Sandy F	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 1	48) we	etland hydrolo	ogy must be pr	esent,
Stripped	Matrix (S6)		Red Parent M	Aaterial (F	21) (MLR	A 127, 14	7) un	less disturbe	d or problemat	ic.
Restrictive	Layer (if observed)	:								
Туре:										\cap
Depth (in	ches):						Hydric Soil	Present?	Yes 🚺	No <u>U</u>
Remarks:										

Project: I-95 5th Lane Widening		Feature ID: Y	Stream Order:
Date: 5/4/2017	State: MD	Photos: 331-332	
Crew: ET/MRS	County: Harford	Last Flag Number: Y-83A&B	

Feature	Hvdro	logic Class	(check on	e):
1 Cucul C	IIJGIU	ICALC CIMOD	(encen on	~,.

Tidal	Perennial	Intermittent		Ephemeral
$\bigcup_{n \to \infty} TNW (Subject to ebb and$	TNW – Perennial	RPW – Seasonal (must	O Non-	RPW draining uplands
\smile flow)	(Flowing year round)	\checkmark flow at least 3 months a	O Non-	RPW erosional feature
	RPW – Perennial	year)	O Non-	RPW with abutting wetland
	(Flowing year round)		O Non-	RPW with adjacent wetland
Describe rational Heavy	base flow during survey		O Non-	RPW wetland adjacent or abutting upstream
for hydrologic class:	ace new daming carry		(outsi	ide of study area)
Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside of study	area	$Adjacent/Abutting: {\tt Wetlands Z, AA \& BB; Waters CC, DD, EE, OO}$

Feature Description: (check all that apply)

	Shape (with resp	ect to <u>OHW</u>)			_	Sul	ostrate			Vegetation Cover Type (MBSS)
∠	Natural Channel Shape	Width: 3-8'		⊻	Silts	 	Sands		Muck	RB: Forest
	Artificial (man-made)	Depth: 6-24"		<u>∕</u>	Cobbles	 ✓ 	Gravel	✓	Other:	
∠	Manipulated (man-altered)	Bank Erosion/stability:			Bedrock		Concrete	Rip	rap	
	Other:	Areas of erosion	Sid	le sl	ope: 🖌 ≥1:1	 ✓ 	2:1 3:1		≤4:1	LB: Forest
No	otes: Originates from culvert under N	MD 24 and flows outside of ROW.	Iron f	floco	culent presen	t. So	ome eroded ur	nder	cut banks.	

Weather/Precipitation Conditions:

	In	iches of					Mo	nthly D	rought C	Conditio	n				
	Rai	n Within						NCDC H	Regional	PDSI		Мо	nth:	Year	:
During Field Visit	La	st Week	http://w	www.ncdd	.noaa.go	v/temp-and	d-precip/cl	imatolog	gical-ran	kings/ir	dex.php	Ma	rch	2017	7
• No rain	\odot	0-0.5	0	0	0	\odot	0	0	0	0	0	0	0	0	0
O Light rain	Ο	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
O Heavy Rain	O	>1	Sev	vere Drou	ght	Moderate	e Drought		Normal		Modera	tely Wet	Se	everely W	et

	Bed and Banks				(Ordinary High Water N	Iark		
	Yes	 Image: A start of the start of	Clear, natural line impres	sed on the bank	 ✓ 	Sediment deposition			Sediment sorting
	No		Changes in the character	of soil	✓	Water staining		 	Scour
			Shelving		✓	Presence of flood litter	/debris	 	Observed/predicted flow events
		>	Vegetation matted down,	n, bent, or absent Destruction of terrestrial ve		al veg.		Abrupt change in plant community	
	✓ Leaf litter disturbed		 Image: A start of the start of	Presence of wrack line Other:			Other:		
	Tidal tributary	has	s: (check all that apply; ind	clude photos for each	h &	list photo #)			
	High	n Ti	de Line	Mean High Wa	ter]	Mark indicated by:			Chemical Characteristics
	Oil or scum line al	ong	shore objects	Survey to avail	able	datum	Wat	er is	clear
	Fine shell or debris	s dej	posits (foreshore)	Physical marking	ngs		Wat	er is	discolored
	Physical markings/	'cha	racteristics	Vegetation line	s/ch	anges in types	Oily	film	1
	Tidal gauges						Othe	er:	
No	otes:								

Project/Site: I-95 5th Lane Widening	City/County: <u>Harford County</u>	Sampling Date: <u>5/4/2017</u>
Applicant/Owner: MDTA	State: MD	Sampling Point: Z-WET
Investigator(s): ET/MRS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain depression	_ Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>1</u>
Subregion (LRR or MLRA): LRR S; MLRA 148 Lat: 39.45699	Long: <u>-76.31136</u>	Datum: WGS84
Soil Map Unit Name:	NWI class	sification: PFO
Are climatic / hyd <u>rolog</u> ic condi <u>tions</u> on the site typical for this time of	of year? Yes 📝 No 🦳 (If no, explain ir	n Remarks.)
Are Vegetation, Soil, or Hydrology significa	antly disturbed? Are "Normal Circumstances	s" present? Yes 📕 No 📘
Are Vegetation, Soil, or Hydrology naturall	ly problematic? (If needed, explain any ans	wers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes No No No Yes No No 	Is the Sampled Area within a Wetland?	Yes No
			e no woody stems within the plot, but the wetland fringe share similar soil

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)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	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 _ Depth (inches):	
Water Table Present? Yes 🗹 No 🗌 Depth (inches): 9	
Saturation Present? Yes <u>Ves</u> No <u>Depth</u> (inches): <u>0</u>	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspe	
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspe	
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