WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 7/6/2018

Applicant/Owner: SHA State: MD Sampling Point: ZY-WET

Investigator(s): EM, EB Section, Township, Range: _____

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.924181 Long: -76.853190 Datum: NAD83

Soil Map Unit Name: CnE-Collington-Wist complex 15-25% slopes NWI classification: PFO1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Ph II (W)

Connected to TT DS

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): n/a
Water Table Present?	Yes ✓	No _____	Depth (inches): 9"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 7Y-WET

Tree Stratum (Plot size: entire WL (20x10))	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	5	✓	FAC
2. Carya cordiformis	5	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Sapling/Shrub Stratum (Plot size: entire WL (20x10))			
1. Ulmus americana	5	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: entire WL (20x10))			
1. Liquidambar styraciflua	8	✓	FAC
2. Smilax rotundifolia	5		FAC
3. Toxicodendron radicans	2		FAC
4. Leersia virginica	10	✓	OBL
5. Parthenocissus quinquefolia	5		FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	

50% of total cover: 15 20% of total cover: 6

Woody Vine Stratum (Plot size: entire WL (20x6))			
1. Smilax rotundifolia	5	✓	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

SOIL

Sampling Point: 7Y - WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	70	7.5YR 4/4	5	C	M	LS	organics + rootlets
	10YR 4/2	25						
4-10	10YR 3/1	95	2.5Y 4/2	5	C	M	SL	w/ organics

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 10"

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland <.01ac Human made? n Is wetland part of a wildlife corridor? no or a "habitat island"? no

Adjacent land use Forest Distance to nearest roadway or other development ~25'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 7Y

Latitude 38.92481 Longitude -76.852190

Prepared by: EM Date 7/6/2018

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 7/6/2018

Applicant/Owner: SHA State: MD Sampling Point: 72-WET

Investigator(s): EM, EB Section, Township, Range:

Landform (hillslope, terrace, etc.): Toe of slope / floodplain head Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 38.924668 Long: -76.853304 Datum: NAD83

Soil Map Unit Name: AdC - Adelphia - Holmdel complex 5-10% slopes NWI classification: PFO1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

ph # 12 E

Floodplain and toe of slope wetland receiving groundwater and upland runoff hydrology

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.5" *
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

* Water TT dissipates in ~10% of plot creating surface water.

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

Sampling Point: 72-WET

Tree Stratum (Plot size: *)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	20	Y	FACW
2. Acer rubrum	10	Y	FAC
3. Carya cordiformis	5		FAC
4.			
5.			
6.			
7.			
8.			
	35	= Total Cover	
50% of total cover: 17.5	20% of total cover: 7		

Sapling/Shrub Stratum (Plot size: *)			
1. Acer rubrum	8	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	8	= Total Cover	
50% of total cover: 4	20% of total cover: 1.6		

Herb Stratum (Plot size: *)			
1. Leersia virginica	10	Y	OBL
2. Smilax rotundifolia	8	Y	FAC
3. Lindera benzoin	3		FACW
4. Persicaria virginiana	5		FAC
5. Impatiens capensis	5		FACW
6. Parthenocissus quinquefolia	3		FACU
7.			
8.			
9.			
10.			
11.			
12.			
	34	= Total Cover	
50% of total cover: 17	20% of total cover: 6.8		

Woody Vine Stratum (Plot size: *)			
1. Smilax rotundifolia	8	Y	FAC
2. Parthenocissus quinquefolia	5	Y	FACU
3.			
4.			
5.			
	13	= Total Cover	
50% of total cover: 6.5	20% of total cover: 2.6		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

* Irregular plot approximately 10' x 20'

SOIL

Sampling Point: 72-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR3/3	100					SiL	rootlets + organics
4-12+	2.5Y3/2	80	7.5YR3/4	20	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.1ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest / Roadway Distance to nearest roadway or other development ~8'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 72

Latitude 38.924668 Longitude -76.853304

Prepared by: EM Date 7/6/2018

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 8A	**Stream Order:** 1st
Date: 7/16/18	**State:** MD	**Photos:** 4 (US), 5 (DS) 6 (US)	
Crew: EM, AC	**County:** PG	**Last Flag Number:** 8A-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☑ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of delineation after dry period			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 8M (wetland)	Downstream: 8J	Adjacent/Abutting: 8M

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☐ Silts	☑ Sands	☐ Muck	RB: Emergent Vegetation Paved Road
☐ Artificial (man-made)	Depth: 1.5'	☐ Cobbles	☑ Gravel	☑ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability: moderate	☐ Bedrock	☐ Concrete	Riprap	LB: Emergent Vegetation Paved Road
☐ Other:		Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Lined with riprap in southern portion

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: June Year: 2018
☑ No rain	☑ 0-0.5	○	○	○	○	○	○	○	○	☑	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 8AA	**Stream Order:** 1
Date: 10/24/18	**State:** MD	**Photos:** US, DS	
Crew: RS SH	**County:** Prince George's	**Last Flag Number:** 8AA/1-4A, 1-4B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit Average Depth 6"

Hydrologic Connectivity – Upstream: Outside Study Area Downstream: 8Z Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 5'	☑ Silts	☑ Sands	☐ Muck		RB: Forested Scrub shrub
☐ Artificial (man-made)	Depth: 1.5'	☑ Cobbles	☑ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Scrub shrub herbaceous
☐ Other:	Minor	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes:

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: 10 Year: 18												
☒	No rain	☒	0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☑ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495 / I-270 Managed Lane Study		**Feature ID:** BBB	**Stream Order:** 1
Date: 10/24/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: RS SH	**County:** Prince George's	**Last Flag Number:** (1-2A)(1-2B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit Average depth of 6"

Hydrologic Connectivity –	Upstream: Out of study area	Downstream: BZ	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5'	☒ Silts	☒ Sands	☐ Muck	RB: Scrub Shrub
☐ Artificial (man-made)	Depth: 2'	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Scrub Shrub
☐ Other:	Minor	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.php) Month: 10 Year: 18												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** BCC	**Stream Order:** 1st
Date: 10/26/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: BS SH	**County:** Prince George's	**Last Flag Number:** BCC(1-3A)(1-3B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ☒ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No flow observed at time of visit. Heavily eroded, flows into perennial BZ

Hydrologic Connectivity –	Upstream: None	Downstream: BZ	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Width: 4'	Substrate						Vegetation Cover Type (MBSS)
☒	Natural Channel Shape		☒	Silts	☒	Sands	☐	Muck	RB: Forest
☐	Artificial (man-made)	Depth: 3'	☐	Cobbles	☒	Gravel	☐	Other:	
☐	Manipulated (man-altered)	Bank Erosion/stability:	☐	Bedrock	☐	Concrete			LB: Forest
☐	Other:	Severe	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1						

Notes:

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: 10 Year: 18												
☒	No rain	☒	0-0.5	○	○	○	○	○	○	○	○	○	○	☒	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 8D	**Stream Order:** N/A (SWM pond)
Date: 7/12/18	**State:** MD	**Photos:** 1 (SW), 6(S)	
Crew: DRS, EB, KS	**County:** PG	**Last Flag Number:** 18	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year) POW	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: SWM Pond in-line, receives hydrology from Waters 8E and 8B

Hydrologic Connectivity –	Upstream: 8B, 8E	Downstream: 8F	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 75'	☒ Silts	☐ Sands	☐ Muck	RB: Scrub-shrub
☑ Artificial (man-made)	~~Depth~~: Length: 175'	☐ Cobbles	☐ Gravel	☑ Other: riprap	
☐ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☐ Concrete		LB: Scrub-shrub
☐ Other:		Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Armored banks w/ riprap

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: June Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	☑	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☑ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☑ Other: Open water @ toe-of-slope

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:

Notes:

Waters of the U.S. Data Sheet

Project: 1270/495 Managed Lane Study		**Feature ID:** SDD	**Stream Order:** 1
Date: 10/30/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: RS PS	**County:** PG Co	**Last Flag Number:** SDD-011 A/B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit with defined bed and banks. Wetland drainage feature

Hydrologic Connectivity –	Upstream: SFF/SEE	Downstream: Out of study area	Adjacent/Abutting: SFF

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 2'	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
⊗ No rain	○ 0-0.5
○ Light rain	○ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI **Month:** 10 **Year:** 18

http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

-6	-5	-4	-3	-2	-1	0	1	2	3	⊗ 4	5	6
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 8E	**Stream Order:** 1st
Date: 7/12/18	**State:** MD	**Photos:** 2(DS), 3(US), 6(DS) NE of 495	
Crew: DRS, EB, KS	**County:** PG	**Last Flag Number:** 8E	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☑ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ☒ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
	○ RPW – Perennial (Flowing year round)		

Describe rational for hydrologic class: Mostly dry channel w/ riprap; no hydric soils (could drainage from wetland)

Hydrologic Connectivity –	Upstream: 8H, 8G	Downstream: 8D	Adjacent/Abutting: 8H

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5'	☐ Silts	☐ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1'	☐ Cobbles	☒ Gravel	☒ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Riprap	LB: Forest
☐ Other:	stable (riprap)	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: connects wetland upstream to Watts downstream

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: June Year: 2018												
☒ No rain	☑ 0-0.5	○	○	○	○	○	○	○	○	☑	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I270/495 Managed Lane Study		**Feature ID:** SEE	**Stream Order:**
Date: 10/30/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: RS PS	**County:** PG	**Last Flag Number:** SE-008 A/B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ⊘ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Wetland drainage feature

Hydrologic Connectivity –	Upstream: SFF	Downstream: SDD	Adjacent/Abutting: SBB

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: 10 Year: 18												
⊘ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	⊘	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 8F	**Stream Order:** 1st
Date: 7/12/18	**State:** MD	**Photos:** 4 (DS), 5 (US)	
Crew: DRS, EB, KS	**County:** PG	**Last Flag Number:** 8F-4A, 8F-4B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Has good flow from pond - no recent rain

Hydrologic Connectivity –	Upstream: 8D	Downstream: 8J	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 12'	☐ Silts	☐ Sands	☐ Muck	RB: Scrub shrub
☒ Artificial (man-made)	Depth: 1'	☐ Cobbles	☐ Gravel	☒ Other: Riprap	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable (Riprap armored)	☐ Bedrock	☐ Concrete		LB: Scrub shrub
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Riprap outlet channel to SWM pond

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: June Year: 2018
⊗ No rain	✓ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		✓ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

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

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-270/I-95 Managed Lane Study City/County: P/G Sampling Date: 10/30/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8FF-UPL-PFO
Investigator(s): PS RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): Convex Slope (%): 1%
Subregion (LRR or MLRA): LRR T MLRA 149A Lat: 38.9475 9 Long: -76.846057 Datum: NAD 83
Soil Map Unit Name: Russett-Christiana complex (RcB) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area is an upland hillslope located west of 8FF-WET_PFO

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

No wetland hydrology observed

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

Sampling Point: SSS-OPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Acer rubrum	30	Y	FAC
2. Quercus rubra	20	Y	FACU
3. Nyssa sylvatica	15	Y	FAC
4.			
5.			
6.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Sapling Stratum (Plot size: 30 ft)			
1. Ilex opaca	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. Allium canadense	10	Y	FACU
2. Lonicera japonica	5	N	FACU
3. Hedera helix	3	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: 8FF-UPL_PFO

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	100					Silt loam	
3-14	5YR 4/3	100					clay loam	
14-20	10YR 4/4	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 1270/495 Managed Lane Study City/County: Prince George's Sampling Date: 10/30/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8FF-UPL_PSS

Investigator(s): PS RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex lope (%): 2-5%

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.946861 Long: -76.844999 Datum: NAD 83

Soil Map Unit Name: Russet-Christiana complex (RcB) NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Area is a hillslope located south of 8FF-WET_PSS.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✗

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

Remarks:

No hydrology present

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

Sampling Point: 868-UPL-PSS

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5 20% of total cover: 2			
Shrub Stratum (Plot size: 30 ft)			
1. Baccharis halimifolia	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15 20% of total cover: 6			
Herb Stratum (Plot size: 30 ft)			
1. POA SP.	40	Y	FACU
2. Cirsium arvense	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5 20% of total cover: 11			
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ____

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

SOIL

Sampling Point: 8FF-UPL_PSS

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24								Unconsolidated fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-270/I-95 Managed Lane Study City/County: Prince George's Sampling Date: 10/30/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8FF-WET_PFO

Investigator(s): PS RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2-5%

Subregion (LRR or MLRA): LRR R MLRA 149A Lat: 38.917495 Long: -76.845727 Datum: NAD83

Soil Map Unit Name: Russett-Christiana Complex (RuB) NWI classification: PFO1A

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

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

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

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

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

Remarks:

8FF-WET_PFO is located north of the US-50/MD-704 overpass.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ___	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Flags: 8FF (1-46)

8FF-WET_PFO receives hydrology from runoff from adjacent uplands and flow from 8GG

Photos: 8FF-WET_PFO_East
8FF-UPL_PFO_West

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

Sampling Point: 888-WET P80

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	Y	FAC
2. Nyssa sylvatica	30	Y	FAC
3. Quercus phellos	10	N	FACW
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot size: 30 ft)			
1. Nyssa sylvatica	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 30 ft)			
1. Onoclea sensibilis	20	Y	FACW
2. Smilax rotundifolia	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

Buttress roots

SOIL

Sampling Point: 8FF-WET_PFO

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Silt loam	Saturated
5-20+	10YR 3/1	80	5YR 5/6	20	C	M	Sandy loam	Saturated

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 3.0Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 16ft

Dominant wetland systems present PFO/PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8FF

Latitude 32.94708 Longitude -76.84496

Prepared by: SH Date 11/2/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	1,2,5,7,8,15,		
Floodflow Alteration	Yes	1,2,3,4,5,6,7,8,9,10,13,18	X	
Fish and Shellfish Habitat	No	4,10,		
Sediment/Toxicant Retention	Yes	1,2,3,4,5,9,10,11,14,16,	X	
Nutrient Removal	Yes	1,3,5,6,7,9,10,11,12,13,14	X	
Production Export	Yes	1,2,4,6,7,8,10,12,14		
Sediment/Shoreline Stabilization	Yes	1,2,3,4,7,13,14,15		
Wildlife Habitat	Yes	3,8,9,13,14,15,17,19,20,		
Recreation	No			
Educational/Scientific Value	No	13,		
Uniqueness/Heritage	No	1,2,10,		
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's County Sampling Date: 10/30/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8FF-WET_PSS

Investigator(s): PS, RS Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.947087 Long: -76.844961 Datum: NAD83

Soil Map Unit Name: Russett-Christiana complex (RcB) NWI classification: PSS1B

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

8FF is located north of the US 50 overpass over MD 704.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.5"	
Water Table Present?	Yes ✓	No _____	Depth (inches): 0"	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"	**Wetland Hydrology Present?** Yes ✓ No _____

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

Remarks:

8FF receives hydrology from runoff from adjacent uplands.

Flags: 8FF(1-46)

Photos:
8FF-WET_PSS_East
8FF-UPL_PSS_South

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

Sampling Point: 8FF-WET_PSS

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1. *Baccharis halimifolia*	60	yes	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 30 ft)			
1. *Poa palustris*	30	yes	FAC
2. *Typha latifolia*	15	yes	OBL
3. *Juncus effusus*	10	no	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Woody Vine Stratum (Plot size: 30 ft)			
1. *Toxicodendron radicans*	10	yes	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: 8FF-WET_PSS

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	85	10YR 4/6	10	C	M	Silt loam	Saturated
			5YR 3/4	5	D	M		
4-20	7.5R 5/6	80	10YR 3/3	10	D	M	Clay loam	Saturated
			10YR 2/2	5	D	M		
			2.5YR 4/6	5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 3.0Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 16ft

Dominant wetland systems present PFO/PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8FF

Latitude 38.94708 Longitude -76.84496

Prepared by: SH Date 11/2/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	1,2,5,7,8,15,		
Floodflow Alteration	Yes	1,2,3,4,5,6,7,8,9,10,13,18		
Fish and Shellfish Habitat	No	4,10,		
Sediment/Toxicant Retention	Yes	1,2,3,4,5,9,10,11,14,16,		
Nutrient Removal	Yes	1,3,5,6,7,9,10,11,12,13,14		
Production Export	Yes	1,2,4,6,7,8,10,12,14		
Sediment/Shoreline Stabilization	Yes	1,2,3,4,7,8,14,15		
Wildlife Habitat	Yes	3,8,9,13,14,15,17,19,20,		
Recreation	No			
Educational/Scientific Value	No	13,		
Uniqueness/Heritage	No	1,2,10,		
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 8G	**Stream Order:** 1st
Date: 7/12/18	**State:** MD	**Photos:** 9(US), 10(DS)	
Crew: JBS, EB, KS	**County:** PG	**Last Flag Number:** 8G-9	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Headcut in uplands draining to Ephemeral draining to 8E downstream section headcuts + interrupts ground water

Hydrologic Connectivity –	Upstream: uplands	Downstream: 8E	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 0.5'	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes: Ephemeral drains to culvert leading to 8E

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php)	Month: June Year: 2018
⊗ No rain	✓ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		✓ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

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

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: 1220/1222 Managed Lane Study		**Feature ID:** BLC4	**Stream Order:** 1
Date: 10/30/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: RS ES	**County:** Frd	**Last Flag Number:** BLC4-003 A/B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Trickling flows from outfall at time of visit with accumulated water in channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SWM	Downstream: SFF-WET	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1'	☑ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: 10 Year: 18												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊗ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/12/18

Applicant/Owner: SHA State: MD Sampling Point: 8H-WET

Investigator(s): DRS, EB, KS Section, Township, Range:

Landform (hillslope, terrace, etc.): Ditch/Swale Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): MLRA 149A Lat: 38.948324 Long: -76.857667 Datum: NAD83

Soil Map Unit Name: Udorthents, highway, 0-6% slopes NWI classification: PFOIA

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

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

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

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

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

Remarks:

Photo 14 looking SE

8I drains to wetland; wetland drains to 8E

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Dry for past week +,

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

Sampling Point: SH-WET

Tree Stratum (Plot size: 15'x50')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	45	Y	OBL
2. Acer rubrum	20	Y	FAC
3. Liquidambar styraciflua	5		FAC
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		

Sapling/Shrub Stratum (Plot size: 15'x50')			
1. Baccharis halimifolia	15	Y	FAC
2. Diospyros virginiana	2		FAC
3. Liquidambar styraciflua	5	Y	FAC
4.			
5.			
6.			
7.			
8.			
	22	= Total Cover	
50% of total cover: 11	20% of total cover: 4.4		

Herb Stratum (Plot size: 5'x25')			
1. Leersia oryzoides	20	Y	OBL
2. Carex lurida	25	Y	FACW
3. Scirpus cyperinus	3		OBL
4. Ludwigia alternifolia	2		OBL
5. Juncus effusus	3		OBL
6. Symphyotrichum sp.	4		N/A
7. Smilax rotundifolia	3		FAC
8.			
9.			
10.			
11.			
12.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		

Woody Vine Stratum (Plot size: 5'x25')			
1. None			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

SOIL

Sampling Point: SH-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/2	90	7.5YR4/4	5	C	M,PL	SL	
			7.5YR3/4	5	C	M,PL		
4-9	7.5YR5/4	97	7.5YR5/8	3	C	M	SiC	
9-12	10YR4/2	75	5YR4/6	25	C	M	SiC	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.04ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, roadway Distance to nearest roadway or other development ~30'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. BH

Latitude 38.948324 Longitude -76.857467

Prepared by: DRS, EB Date 7/12/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓		✓		
Fish and Shellfish Habitat		✓	✓		
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓	✓		
Production Export		✓	✓		
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓	✓		
Educational/Scientific Value		✓	✓		
Uniqueness/Heritage		✓	✓		
Visual Quality/Aesthetics		✓	✓		
ES Endangered Species Habitat		✓	✓		
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I270/495 Managed Lane Study		**Feature ID:** SHH	**Stream Order:** 1
Date: 10/30/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: PS, TLS	**County:** FRE	**Last Flag Number:** SHH-005 A/B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Trickling flow at time of visit with accumulated water in channel.

Hydrologic Connectivity –	Upstream: Intercepted ground water	Downstream: SHH	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 2"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: 10 Year: 18												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 8I	**Stream Order:** 1
Date: 7/12/18	**State:** MD	**Photos:** 15(US) 16(DS)	
Crew: DRS, EB, KS	**County:** PG	**Last Flag Number:** 8I-S	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	✓ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Erosional feature receiving overland flow from upslope and drains to wetland 8H.

Hydrologic Connectivity –	Upstream: None	Downstream: 8H	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3.5'		✓ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1'		☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable		☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:			Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: June Year: 2018													
○ No rain	✓ 0-0.5	○	○	○	○	○	○	○	○	✓	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☐ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 8J	**Stream Order:** 1st
Date: 7/17/18	**State:** MD	**Photos:** 17(US), 18(DS)	2(US), 3(DS) on 7/16/2018
Crew: BRS, EB, KS	**County:** PG	**Last Flag Number:** 8J-6; 8J 1A-7A & 1B-8B 7/16/18	8J - 8A → 12A & 9B-13B. 1/30

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Active flow during week of no rain. Downstream W of 495 is perennial

Hydrologic Connectivity	Upstream: 8K (wetland), 8A, 8N, 8MM	Downstream: Outside Study Area	Adjacent/Abutting: 8K, 8LL

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☑ Silts	☐ Sands	☐ Muck	RB: Scrub-shrub
☐ Artificial (man-made)	Depth: 1'	☑ Cobbles	☑ Gravel	☑ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	riprap	LB: Forest
☐ Other:	Stable, riprap lined	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Drains wetland 8K, flows to culvert under I495, continues beyond study area. Sand wetland 8L

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: June Year: 2018												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	○	⊗	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's Sampling Date: 10/30/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8JJ-WET

Investigator(s): RS PS Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.947597 Long: -76.8466606 Datum: NAD 83

Soil Map Unit Name: Russett-Christiana Complex (RcE) NWI classification: PFO1B

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

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

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

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

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

Remarks:

8JJ is located adjacent to 8HH. The wetland drains into the stream

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1/4"	
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"	
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"	**Wetland Hydrology Present?** Yes ✓ No ____

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

Remarks:

8JJ receives hydrology from a seep and runoff from adjacent uplands.

Flags: 8JJ(1-5)

Photos: 8JJ-WET_Northeast

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

Sampling Point: BOJ-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover:		

Sapling Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30 ft)			
1. Juncus effusus	15	Yes	FACW
2. Onoclea sensibilis	15	Yes	FACW
3. Quercus phellos	5	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

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

SOIL

Sampling Point: SDI-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/1	85	10YR 6/8	10	C	M	Sandy clay loam	Saturated
			10YR 4/2	5	D	M		
8-20	7.5YR 6/8	80	10YR 6/3	20	C	M	Sand loam	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.1 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Upland wooded/Roadway Distance to nearest roadway or other development 33 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8JJ

Latitude 38.94759 Longitude -76.84660

Prepared by: SH Date 11/2/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	No			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/12/18

Applicant/Owner: SHA State: MD Sampling Point: 8K-WET

Investigator(s): DRS, EB, KS Section, Township, Range: _____

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.949991 Long: -76.859656 Datum: NAD83

Soil Map Unit Name: Udorthents, highway, 0-6% slopes NWI classification: PEMIA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Abuts PFO 8L, 8J dissipates into Ph 24(5) 8K. Flows concentrate becoming 8J again before flowing under 495

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ✓ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 9"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Positive alpha-alpha dipiridol

High water table reached 9" after 20 min

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 8K-WET

Tree Stratum (Plot size: 10x50)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Sapling/Shrub Stratum (Plot size: 10'x50')			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Herb Stratum (Plot size: 10' x 50')			
1. Leersia oryzoides	95	✓	OBL
2. Typha latifolia	5		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

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

Woody Vine Stratum (Plot size: 10x50')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL

Sampling Point: 8K-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	90	7.5YR 3/4	10	C	PL	Loam	
5-12	10YR 4/2	88	7.5YR 4/6	12	C	M PL	Sandy loam	many fine rootlets & buried organics
12-14	7.5YR 4/4	100					Sandy clay loam	fine sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? N

Adjacent land use Forest, roadway Distance to nearest roadway or other development ~60'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Headwaters

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8K

Latitude 38.94999 Longitude -76.85965

Prepared by: DBS Date 7/12/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				Dense herbaceous vegetation
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				Observed sediment deposits in swale
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's County Sampling Date: 10/30/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8KK-WET

Investigator(s): PS, RS Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.947087 Long: -76.844961 Datum: NAD83

Soil Map Unit Name: Russett-Christiana complex (RcB) NWI classification: PSS1B

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

8KK is located north of the US 50 overpass over MD 704.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.5"	
Water Table Present?	Yes ✓	No _____	Depth (inches): 0"	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"	**Wetland Hydrology Present?** Yes ✓ No _____

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

Remarks:

8KK receives hydrology from runoff from adjacent uplands.

Flags: 8KK(1-46)

Photos:
8KK-WET_PSS_East
8KK-UPL_PSS_South

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

Sampling Point: 8KK-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1. *Baccharis halimifolia*	60	yes	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 30 ft)			
1. *Poa palustris*	30	yes	FAC
2. *Typha latifolia*	15	yes	OBL
3. *Juncus effusus*	10	no	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Woody Vine Stratum (Plot size: 30 ft)			
1. *Toxicodendron radicans*	10	yes	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: 8KK-WET

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	85	10YR 4/6	10	C	M	Silt loam	Saturated
			5YR 3/4	5	D	M		
4-20	7.5R 5/6	80	10YR 3/3	10	D	M	Clay loam	Saturated
			10YR 2/2	5	D	M		
			2.5YR 4/6	5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 3.0Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 16ft

Dominant wetland systems present PFO/PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8KK

Latitude 39.94708 Longitude -76.84496

Prepared by: SH Date 11/2/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	1,2,5,7,8,15,		
Floodflow Alteration	Yes	1,2,3,4,5,6,7,8,9,10,13,18		
Fish and Shellfish Habitat	No	4,10,		
Sediment/Toxicant Retention	Yes	1,2,3,4,5,9,10,11,14,16,		
Nutrient Removal	Yes	1,3,5,6,7,9,10,11,12,13,14		
Production Export	Yes	1,2,4,6,7,8,10,12,14		
Sediment/Shoreline Stabilization	Yes	1,2,3,4,7,8,14,15		
Wildlife Habitat	Yes	3,8,9,13,14,15,17,19,20,		
Recreation	No			
Educational/Scientific Value	No	13,		
Uniqueness/Heritage	No	1,2,10,		
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 1270/495 Managed Lane Study City/County: Prince George's Sampling Date: 10/30/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8KK-UPL

Investigator(s): RS RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex lope (%): 2-5%

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.946861 Long: -76.844999 Datum: NAD 83

Soil Map Unit Name: Russet-Christiana complex (RcB) NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Area is a hillslope located south of 8KK-WET

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✗

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

Remarks:

No hydrology present

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

Sampling Point: 8KK-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5 20% of total cover: 2			
Shrub Stratum (Plot size: 30 ft)			
1. Baccharis halimifolia	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15 20% of total cover: 6			
Herb Stratum (Plot size: 30 ft)			
1. POA SP.	40	Y	FACU
2. Cirsium arvense	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5 20% of total cover: 11			
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ____

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

SOIL

Sampling Point: 8KK-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24								Unconsolidated fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/12/18

Applicant/Owner: SHA State: MD Sampling Point: BL-WET

Investigator(s): DRS, EB, KS Section, Township, Range: _____

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.950294 Long: -76.859876 Datum: NAD83

Soil Map Unit Name: Christiana-Downer-Urban land complex, 5-15% slopes NWI classification: PFO1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Fringe PFO along intermittent channel (BL) Ph 21 (S)

Drains to PEM BK.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 10-22"

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Confining layer at 22"

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

Sampling Point: 8L-WET

Tree Stratum (Plot size: 10'x50')	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	70	✓	FACW
2. Salix nigra	15		OBL
3.			
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Sapling/Shrub Stratum (Plot size: 10x50')			
1. Liquidambar styraciflua	5	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 10x50)			
1. Ampelopsis brevipedunculata	7	✓	UPL
2. Schedonorus arundinaceus	25	✓	FAC
3. Scirpus cyperinus	5		OBL
4. Carex squarrosa	1		FACW
5. Carex vulpinoidea	1		FACW
6. Lonicera japonica	2		FACU
7. Dichanthelium dandestinum	5		FACW
8. Persicaria sagittata	2		OBL
9.			
10.			
11.			
12.			
	48 = Total Cover		
50% of total cover: 24	20% of total cover: 9.6		
Woody Vine Stratum (Plot size: 10x50)			
1. Vitis vulpina	5	✓	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: SL-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	97	7.5YR 4/6	3	C	M	SL	many rootlets
2-9	10YR 4/2	80	7.5YR 4/6	5	C	M,PL	SL	
	7.5YR 7/4	15					S	coarse
9-16	7.5YR 4/4	98	7.5YR 4/6	2	C	M	LS	
16-22	7.5YR 4/6	80					SL	
	10YR 3/2	20						organic material

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 22"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development ~55'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? headwaters

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8L

Latitude 38.950294 Longitude -76.859876

Prepared by: DRS Date 7/12/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				Woody stems & herbaceous vegetation
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				Observed sediment deposits
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				Adjacent forest on east side provides habitat
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 1/30/19

Applicant/Owner: SHA State: MD Sampling Point: SLL-WET

Investigator(s): MN, SP Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: Long: Datum: NAD83

Soil Map Unit Name: Zekiah and Issue soils, frequently flooded NWI classification: PFO1B

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

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

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

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

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

Remarks:

Wetland depression around sewerline manhole on unaccessible parcel. Sketched boundary + collected data from opposite stream bank + adj. parcel. Photo 8 (N) adj. to Waters 8J

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No *	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0 *

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

* Saturation visible but unable to access to confirm hydrology + investigate water table

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

Sampling Point: SLL-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. Platanus occidentalis	50	✓	FACW
2. Acer rubrum	20	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 30')			
1. Fraxinus pennsylvanica	25	✓	FACW
2. Baccharis halimifolia	15	✓	FAC
3. Cornus amomum	10		FACW
4. Lonicera maackii	10		UPL
5.			
6.			
7.			
8.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 30')			
1. Microstegium vimineum	50	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (Plot size: 30²)			
1. Lonicera japonica	10	✓	FACU
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

*Species observed from adj parcel + percentages estimated
Unable to view herbaceous species well, only one species noted.

SOIL

Sampling Point: SU-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils were not sampled

Wetland Function-Value Evaluation Form

Total area of wetland ~0.04 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Commercial, forest Distance to nearest roadway or other development ~50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? mid.

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. SLL

Latitude 38.998527 Longitude -76.861207

Prepared by: MN Date 1/30/19

Wetland Impact:
Type — Area —

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/16/18

Applicant/Owner: SHA State: MD Sampling Point: SM-WET

Investigator(s): EM, AG Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.947905 Long: -76.860303 Datum: NAD83

Soil Map Unit Name: Udorthents, highway, 0-6% slopes NWI classification: PEMIA

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

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

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

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

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

Remarks: Soils disturbed due to excessive sediment runoff from highway bridge piling

ph 6(NN) 7(E) Drains to 8A.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): <1/2"
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Saturation due to channelized ditch, rip-rap lined below ~6" of soils

Surface water present in approximately 5% of plot.

Water table unable to be identified due to impenetrable riprap layer at ~6".

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

Sampling Point: BM-WE1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ✱)			
1. None.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: ✱)			
1. Baccharis halimifolia	5	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: ✱)			
1. Typha latifolia	60	✓	OBL
2. Schoenoplectus americanus	50	✓	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: ✱)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

✱ Plot size irregular, approximately 8' x 30'

SOIL

Sampling Point: SM-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	70					SL	
	10YR 4/3	30						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rip-rap

Depth (inches): 6"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils disturbed due to heavy sediment deposition from surrounding uplands and highway, likely hydric due to dominate vegetation and hydrology sweo

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? altered Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway Distance to nearest roadway or other development ~20'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8M

Latitude 38.947905 Longitude -76.860303

Prepared by: EM Date 7/16/208

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 8MM	**Stream Order:** 1
Date: 1/30/19	**State:** MD	**Photos:** 9(US), 10(DS)	
Crew: MN, SP	**County:** PG	**Last Flag Number:** 8MM-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Significant flow during field assessment

Hydrologic Connectivity –	Upstream: Unknown	Downstream: 8J	Adjacent/Abutting: None

Feature Description: ***(check all that apply)*** originated from culvert beneath parking lot

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2'	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: minor erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: flows from culvert into Waters 8J

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: Dec Year: 2018												
✓ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	✓	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	✓ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** SN	**Stream Order:** 2
Date: 7/16/2018	**State:** MD	**Photos:** 9 DS, 10 US, 11 culvert input	
Crew: AC, EM	**County:** Prince George's	**Last Flag Number:** 21	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing water on average 5" during a dry period			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SO	Downstream: SJ	Adjacent/Abutting: SP, SO, SQ

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 2.5'	☐ Silts	☑ Sands	☐ Muck	RB: Paved Road
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	☑ Gravel	☒ Other: Riprap	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Paved Road
☐ Other: Rip-rap in sections	Stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Runs along road, perennial @ headcut, wetland forge along parts, part is vegetated channel w/ flowing water so called entire ditch part of channel per guidance

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: June Year: 2018												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	○	⊗	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/16/2018

Applicant/Owner: SHA State: MD Sampling Point: 80-WET

Investigator(s): AC, EM Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.950029 Long: -76.861513 Datum: NAD83

Soil Map Unit Name: Udorthents, highway, 0-6% slopes NWI classification: PEMIE

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

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

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

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

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

Remarks:
Some vegetation appears to have been sprayed so road sign is visible

ph 12 (N) Drains to SN

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 4"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

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

Sampling Point: 80-WET

Tree Stratum (Plot size: *)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	5	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Sapling/Shrub Stratum (Plot size: *)			
1. Sambucus nigra	40	✓	FACW
2. Salix nigra	10	✓	OBL
3. Rubus sp.	20	✓	N/A
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Herb Stratum (Plot size: *)			
1. Typha latifolia	60	✓	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: *)			
1. Ampelopsis brevipedunculata	15	✓	UPL
2.			
3.			
4.			
5.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Sambucus nigra and Rubus sp. mostly dead from being sprayed. Rubus species could not be identified to species level. Even if the Rubus were FACU or UPL, the vegetation would still pass the Dominance Test.

SOIL

Sampling Point: SO-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	95	7.5YR 3/4	5	C	M/PL	SCL	w/ organics + rootlets

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 12"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.04ac Human made? altered/ditched Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway, Commercial Distance to nearest roadway or other development ~10'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? ———

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 80

Latitude 38.750029 Longitude -76.861513

Prepared by: AC Date 7/16/18

Wetland Impact:
Type ——— Area ———

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ———

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓	✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/16/18

Applicant/Owner: SHA State: MD Sampling Point: SP WET

Investigator(s): EM, AG Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.949495 Long: -76.861219 Datum: NAD83

Soil Map Unit Name: Urban land – Russett - Christiana complex 0-5% slopes NWI classification: PSS1B

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

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

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

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

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

Remarks:

Series of floodplain benches abutting Waters SN. Ph 13(SE), 14(S)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 6"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

SP-WET

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: _____

Tree Stratum (Plot size: *)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size: *)			
1. Baccharis halimifolia	10	✓	FAC
2. Salix nigra	25	✓	OBL
3. Fraxinus pennsylvanica	10		FACW
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Herb Stratum (Plot size: *)			
1. Typha latifolia	20	✓	OBL
2. Lonicera japonica	10	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (Plot size: *)			
1. Toxicodendron radicans	5	✓	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

*Plot consists of area 20' long and 10' wide.

SOIL

Sampling Point: SP-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/2	100					SL	w/organics + rootlets
2-12+	10YR3/2	90	7.5YR4/6	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? altered, ditched Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway Distance to nearest roadway or other development 10'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. SP

Latitude 38.949495 Longitude -76.861219

Prepared by: EM Date 7/16/18

Wetland Impact:
Type ~ Area —

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization	✓				
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/16/18

Applicant/Owner: SHA State: MD Sampling Point: SQ-WET

Investigator(s): EM, AC Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.949365 Long: -76.861110 Datum: NAD83

Soil Map Unit Name: Urban land-Russett-Christiana complex, 0-5% slopes NWI classification: PEMIA

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

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

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

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

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

Remarks:

Photo #16 looking S Abuts BN

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ___	Depth (inches): 4"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

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

Sampling Point: SQ-WET

Tree Stratum (Plot size: ✱)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: ✱)			
1. Salix nigra	10	✓	OBL
2. Sambucus nigra	5	✓	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: ✱)			
1. Phragmites australis	75	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Woody Vine Stratum (Plot size: ✱)			
1. Toxicodendron radicans	5	✓	FAC
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

Plot consists of 20' long by 10' wide area

SOIL

Sampling Point: SQ-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 4/4	5	C	M/PL	SiL	Many rootlets
4-12+	10YR 2/1	100					SiL	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 2.01ac Human made? altered Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Commercial, Roadway Distance to nearest roadway or other development <10'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8Q

Latitude 38.949305 Longitude -76.861110

Prepared by: AC Date 7/16/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓	✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Final

Verified 7/18/2018 EM, AC

Stream Features
Field Sheet

Date: 7/18/2018 ~~7/22/04~~ Project Site: I-495/I-270 Managed Lanes Study ~~Capital Beltway~~ Wetland #: ~~12~~ ~~W12 PG~~ 8R

Observer(s): ~~BJG, KCG~~ EM, AC ~~KJH - 4/15/15~~

Stream Flow:

Perennial: ~~X~~ Intermittent X Ephemeral _____

Gradient: 1%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 12' Depth 8' Avg. Water Depth 12"

Has stream morphometry been altered? yes Describe type and degree: channelized for most of its length

Habitat and Pollutants:

Substrate (predominant type (s)): sand

Habitat Complexity (Characterize) low- lack of riffle/pool structure, iron flocculation, large amounts of trash

Bank Erosion: Severe _____ Moderate √ Minor _____

Describe: exposed bank, undercut banks

Silt Deposition: heavy

Pollutants (observation / potential sources): white foam on top of water, large amounts of algae and trash

Stormwater Outfalls: 3

Riparian Zone:

Development: Left bank hotel, right bank Beltway, narrow buffer

Riparian vegetation: Forest √ Shrubs √ Herbs _____

Dominant Species: maple, arrow-wood, poison ivy

Approximate % shading by woody species: 90%

Steepness of adjacent slopes: 2%

Notes: R2UB2 ph # 2(DS), 3(US) not flowing during site visit
ph # 12(DS). North of Annapolis Rd.

Waters 8T 3, 9Q drain to Waters 8R
ph 5(DS), 6(US) taken of downstream portion 11/2/2018

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 8S	**Stream Order:** 1st
Date: 7/18/18	**State:** MD	**Photos:** 6 (US) 7 (DS), 5 (S)	
Crew: EM, AL	**County:** PG	**Last Flag Number:** 8S-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ☑ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Drains NW under MD 450 to culvert and provides hydrology to Wetland *

Hydrologic Connectivity –	Upstream: uplands	Downstream: 9E (wetland)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 2'	☐ Silts	☑ Sands	☐ Muck	RB: Emergent Vegetation, Commercial
☐ Artificial (man-made)	Depth: 0.5'	☐ Cobbles	☐ Gravel	☑ Other: Debris	
☐ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: Emergent Vegetation, Paved Road
☐ Other:		Side slope: ☐ ≥1:1 ☑ 2:1 ☑ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: June Year: 2018
☑ No rain	● 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		☑ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

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

Bed and Banks	Ordinary High Water Mark			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☑ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** ST	**Stream Order:** 1
Date: 7/18/2018	**State:** MD	**Photos:** 4(US) 9(DS)	
Crew: EM, AC	**County:** Prince Georges	**Last Flag Number:** 6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ⊘ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: observed bed and banks, DS has standing water from recent rainfall, connects wetland and Perennial channel.

Hydrologic Connectivity –	Upstream: SU	Downstream: SD	Adjacent/Abutting: SU (wetland)

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☐ Silts	☒ Sands	☐ Muck	RB: Emergent vegetation and Paved Road
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Emergent vegetation and Paved road
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: Drainage ephemeral channel drains ditch wetland, portion of channel is subterranean but headcuts near SQ

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: June	Year: 2018
⊘ No rain	● 0-0.5	○ -6 ○ -5 ○ -4	○ -3 ○ -2	○ -1 ○ 0 ○ 1	● 2 ○ 3	○ 4 ○ 5 ○ 6
○ Light rain	○ 0.5-1	Severe Drought	Moderate Drought	Normal	Moderately Wet	Severely Wet
○ Heavy Rain	○ >1					

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

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 7/18/2018

Applicant/Owner: SHA State: MD Sampling Point: BU-WET

Investigator(s): AC, EM Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.960463 Long: -76.864012 Datum: NAD 83

Soil Map Unit Name: UdaF - Udorthents, highway 0-65% slopes NWI classification: PEMIA

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

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

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

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

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

Remarks:

Roadside ditch wetland drains to BT

ph 8, 5

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 3"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Roadside ditch receiving runoff from adjacent roadway as well as clogged stormwater concrete swale draing Commercial parking lot

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

Sampling Point: SU-WET

Tree Stratum (Plot size: 5' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 5' x 30')			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5' x 30')			
1. Typha lat. Colon	80	✓	OBL
2. Persicaria hydropiper	10		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 5' x 30')			
1. none			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Plot irregular, characterized entire wetland, approximately 5' wide x 30' long

SOIL

Sampling Point: 84-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					LS	organics
3-12	10YR 3/2	85	7.5YR 5/8	15	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- √ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes √ No ___

Remarks:

Wetland Function-Value Evaluation Form

Wetland I.D. 8U

Total area of wetland <.01ac Human made? altered, ditch Is wetland part of a wildlife corridor? N or a "habitat island"? N

Latitude 38.960963 Longitude -76.864012

Adjacent land use Roadway, Commercial Distance to nearest roadway or other development ~5'

Prepared by: AC Date 7/18/18

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Wetland Impact:
Type _____ Area _____

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

Evaluation based on:
Office ✓ Field ✓

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓		✓		Reduces flooding in storm events – retains/ slows roadway runoff
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		✓		
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 7/12/18

Applicant/Owner: SHA State: MD Sampling Point: S-UPL1

Investigator(s): MN, SI Section, Township, Range: _____

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 2-3

Subregion (LRR or MLRA): MLRA 149A Lat: 38.946569 Long: -76.860897 Datum: NAD83

Soil Map Unit Name: Urban land-Russett-Christiana complex, 0-5% slopes NWI classification: _____

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

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:

Ph.27(N).

Highly disturbed soils * Isolated ditch, no downstream connection to jurisdictional features

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

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

Sampling Point: 8 - UPL

Tree Stratum (Plot size: *)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Sapling/Shrub Stratum (Plot size: *)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: *)			
1. Typha latifolia	50	✓	OBL
2. Scirpus atrovirens	15		OBL
3. Juncus effusus	15	✓	OBL
4. Echinochloa muricata	25	✓	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		

Woody Vine Stratum (Plot size: *)			
1. Toxicodendron radicans	10	✓	FAC
2. Smilax rotundifolia	5	✓	FAC
3. Campsis radicandS	3		FAC
4. Hedera helix	3		FACU
5.			
	21 = Total Cover		
50% of total cover: 10.5	20% of total cover: 4.2		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

* Plot follows limits of ditch, approx 15' x 30' plot

SOIL

Sampling Point: 8-UPL1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR3/2	20	7.5YR3/3	5	C	M	SiCL	
	10YR3/3	75						
2-6	7.5YR4/6	80					FSCL	fill material w/ gravel
	10YR4/6	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: fill and gravel

Depth (inches): 6+

Hydric Soil Present? Yes ____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-270/I-495 Managed Lanes Study City/County: PG Sampling Date: 2/5/2018
Applicant/Owner: SHA State: MD Sampling Point: B-UPL+2
Investigator(s): MAI, SP Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 4-5
Subregion (LRR or MLRA): MLRA 148 Lat: 38.951920 Long: -76.864027 Datum: NAD83
Soil Map Unit Name: Christiana - Downer - Urban land complex, 5-15% slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photo #6 looking NE
Upland depression within interchange.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0-2"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:
Saturation perched over clay + fill material.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 8-UPL 2

Tree Stratum (Plot size: Irregular)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: Irregular)			
1. Baccharis halimifolia	8	✓	FAC
2. Pyrus Calleryana	3	✓	UPL
3. Juniperus virginiana	3	✓	FACU
4.			
5.			
6.			
7.			
8.			
	14 = Total Cover		
50% of total cover: 7	20% of total cover: 2.8		
Herb Stratum (Plot size: Irregular)			
1. Setaria pumila	35	✓	FAC
2. Echinochloa muricata	35	✓	FACW
3. Baccharis halimifolia	3		FAC
4. Panicum virgatum	15		FAC
5. Lonicera japonica	5		FACU
6. Andropogon virginicus	12		FAC
7. Persicaria sp.	6		N/A
8.			
9.			
10.			
11.			
12.			
	111 = Total Cover		
50% of total cover: 55.5	20% of total cover: 22.2		
Woody Vine Stratum (Plot size: Irregular)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

*Plot Size is irregular and was limited to boundary of swale (~15' x 40')

SOIL Sampling Point: S-UPL 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 6/3	52	7.5YR 4/6	8	C	M/PL	SCL	
	2.5Y 5/3	40	–	–	–	–		
8-11	10YR 5/4	90	7.5YR 4/6	10	C	M	SL	w/ Clay nodules + gravel
11-13	2.5Y 4/2	60	7.5YR 6/8	5	C	M	SCL	w/ fill material
	10YR 4/6	35					–	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rocks + fill / concrete

Depth (inches): 14"

Hydric Soil Present? Yes ____ No ✓

Remarks:

Rejected @ 14" by rock / concrete

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** SV	**Stream Order:** 1
Date: 19 JULY 2018	**State:** MD	**Photos:** 8 (DS), 9 (US)	
Crew: DRS, AC	**County:** PG	**Last Flag Number:** 6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Hydric soils observed in channel, trickle of flow

Hydrologic Connectivity –	Upstream:	Downstream:	Adjacent/Abutting:
	Rip rap, non-JD ephemeral	SWM pond outside study area	None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4'		☐ Silts	☒ Sands	☐ Muck		RB: Forest
☐ Artificial (man-made)	Depth: 4'		☐ Cobbles	☒ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☒ Concrete			LB: Forest
☐ Other:	Moderate below culvert		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1				

Notes: Exits culvert beneath I-495 to storm water mgmt pond outside study area

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: June Year: 2018												
☒ No rain	☒ 0-0.5	○	○	○	○	○	○	○	○	☒	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I270/I495 Managed Lane Study		**Feature ID:** SW	**Stream Order:** 1
Date: 10/10/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: RS KH	**County:** P/G	**Last Flag Number:** SW-20 A/B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Observed flow with defined bed and banks.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 7S	Downstream: Beyond study area	Adjacent/Abutting: 8X

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2	☒ Silts	☒ Sands	☐ Muck	RB: Herbacious, shrub
☒ Artificial (man-made)	Depth: 1.5'	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☒ Concrete		LB: Herbacious, shrub
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Culverted at upstream extent and underneath I-495 off ramp to corporate Dr.					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: October Year: 18											
⊗	No rain	⊗	0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☒ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 8X	**Stream Order:** 1
Date: 10/10/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: BS SH	**County:** PG	**Last Flag Number:** 8X – 10 A/B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Water in channel at time of visit, but no observed flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Beyond study area	Downstream: 8Y, 8W	Adjacent/Abutting: 8Y

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2'	☒ Silts	☒ Sands	☐ Muck	RB: Herbaceous
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☒ Gravel	☒ Other: Debris	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Herbaceous
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: October Year: 18												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's Co Sampling Date: 10/10/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8Y-UPL
Investigator(s): SH RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 0-65
Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.945454 Long: -76.865775 Datum: NAD 83
Soil Map Unit Name: Udorthents, highway (UdaF) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Area is a hillslope adjacent to the roadway and located South of 8Y

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:
No hydrology observed.

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

Sampling Point: 8Y-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

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

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

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

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

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

Herb Stratum (Plot size: 30 ft)			
1. Andropogon virginicus	30	Yes	FAC
2. Ampelopsis brevipedunculata	20	Yes	UPL
3. Lonicera japonica	15	No	FACU
4. Rubus occidentalis	15	No	UPL
5. Cirsium arvense	5	No	FACU
6. Solidago canadensis	5	No	FACU
7. Rumex crispus	5	No	FAC
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

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

SOIL

Sampling Point: 8Y-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100					SL	Fill
5-7	10YR 6/1	80	7.5YR 4/6	20	C	M	SCL	Fill
8-12	10YR 7/6	100					SL	Fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's County Sampling Date: 10/10/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 8Y-WET

Investigator(s): RS SH Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.945369 3 Long: -76.865674 Datum: NAD83

Soil Map Unit Name: Issue-Urban land Complex (IU) NWI classification: PEM1A

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

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

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

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

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

Remarks:
8Y is located north of the ramp from I-495 southbound to US-50 westbound.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:
8Y receives hydrology from intermittent stream 8X and runoff from adjacent uplands.

Flags: 8Y(1-17)

Photos: 8Y-WET_Northeast
8Y-UPL_West

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 8Y-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	15	Yes	FAC
2. Acer rubrum	15	Yes	FAC
3. Acer saccharinum	5	No	FAC
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Sapling Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	10	Yes	FAC
2. Acer rubrum	10	Yes	FAC
3. Acer saccharinum	10	Yes	FAC
4. Quercus phellos	10	Yes	FACW
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Shrub Stratum (Plot size: 30 ft)			
1. Rosa multiflora	10	yes	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30 ft)			
1. Micro stegium vimineum	80	Yes	FAC
2. Typha angustifolia	35	Yes	OBL
3. Leersia oryzoides	20	NO	OBL
4. Peltandra virginica	10	No	OBL
5. Ampelopsis cordata	5	No	FAC
6. Rosa multiflora	2	No	FACU
7.			
8.			
9.			
10.			
11.			
	152 = Total Cover		
50% of total cover: 76	20% of total cover: 30.4		

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 89 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: SY-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	80	7.5YR 5/8	20	C	M	Silty Clay	
6-10	10YR 4/1	60	10YR 5/8	40	D	M	Clay	
11-20	10YR 5/3	85	10YR 5/8	15	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.55 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway, developed Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? One Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 8Y

Latitude 38.9453 Longitude -76.8656

Prepared by: RS Date 10/29/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	2, 5, 7, 8, 15,		
Floodflow Alteration	Yes	1, 2, 3, 4, 5, 6, 7, 9, 10, 18		Saturation and surface water present in wetland but not intermittent in/out flow.
Fish and Shellfish Habitat	No	10		
Sediment/Toxicant Retention	Yes	1, 2, 4, 7, 10, 11, 13, 16		
Nutrient Removal	Yes	3, 4, 7, 9, 10, 11, 12, 14		
Production Export	No	4, 6, 8		Few crayfish burrows observed
Sediment/Shoreline Stabilization	Yes	2, 3, 4, 5, 9, 15		PEM & PFO areas.
Wildlife Habitat	No	3, 14, 17		Deer tracks observed
Recreation	No			
Educational/Scientific Value	No	13		
Uniqueness/Heritage	No	1.		
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 8Z	**Stream Order:** 2
Date: 10/24/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: BS SH	**County:** Prince George's	**Last Flag Number:** 8Z(1-24A) (1-24B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of visit w/ an average depth of 1.5'			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Out of study area	Downstream: Out of Study area	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 12'	☒ Silts	☒ Sands	☐ Muck		RB: Scrub Shrub
☐ Artificial (man-made)	Depth: 6'	☒ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Scrub Shrub
☐ Other:	Moderate	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1				
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temps-and-precip/climatological-rankings/index.php) Month: 10 Year: 18												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

7/25/18

Project/Site: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: ~~4/13/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~07-UPL3~~ 9-UPL1

Investigator(s): ~~KJH, KH~~ EM, AC Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.958911 Long: -76.867865 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: NA

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

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

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

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

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

Remarks:

stormwater outfall, draining to swale w/ Phragmites.

photo # ~~9375 9376~~ 27 (NE)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Surface water observed outside plot point

Series of recent heavy rains over past 3-4 days.

9-UPL1

Sampling Point: ~~9-UPL3~~

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

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus pumila	40	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		

50% of total cover: 20 20% of total cover: 8

Sapling/Shrub Stratum (Plot size: 10')			
1. Lonicera morrowii	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: 10')			
1. Phragmites australis	90	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	135 (A)		360 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (If observed, list morphological adaptations below)

SOIL

Sampling Point: 9-UPL1 ~~07 UPL3~~

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100	-	-	-	-	loam	Gravel mixed in profile
7-10	10YR 2/1	98	7.5YR 4/6	2	C	M	loam	Gravel fill mixed in
10-13	10YR 2/1	100	-	-	-	-	sandy loam	organic material mixed in

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

NO hydric soil indicators

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 11/19/2019

Applicant/Owner: SHA State: MD Sampling Point: 9-UPL-2

Investigator(s): MN, SP, VE Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): MLRA 149A Lat: 38.980605 Long: -76.876715 Datum: NAD83

Soil Map Unit Name: Russett-Christiana-Urban land complex, 0-5% slopes NWI classification: N/A

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

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

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

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

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

Remarks:

Photo # 9 looking West.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 0"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

NO precipitation in the past 48 hours.

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

Sampling Point: 9-UPL 2

Tree Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Robinia pseudoacacia	8		UPL
2. Liquidambar styraciflua	60	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	68	= Total Cover	
50% of total cover: 34	20% of total cover: 13.6		

Sapling/Shrub Stratum (Plot size: 15')			
1. Liquidambar styraciflua	10	Y	FAC
2. Hibiscus syriacus	8	Y	UPL
3. Sambucus nigra	2		FACW
4. Pinus pensilvanicus	10	Y	FAC
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		

Herb Stratum (Plot size: 15')			
1. Lonicera japonica	40	Y	FACU
2. Allium vineale	5		FACU
3. Campsis radicans	2		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	47	= Total Cover	
50% of total cover: 23.5	20% of total cover: 9.4		

Woody Vine Stratum (Plot size: 15')			
1. Lonicera japonica	15	Y	FACU
2.			
3.			
4.			
5.			
	15	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	2	x 2 =	4
FAC species	82	x 3 =	246
FACU species	60	x 4 =	240
UPL species	16	x 5 =	80
Column Totals:	160 (A)		570 (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✓

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

* Plot limited to bowl shaped depression.

SOIL

Sampling Point: 9-UPL2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/4	100	—	—	—	—	SCL	
4-12	10YR 4/4	50	7.5YR 4/6	5	C	M	SCL	
	10YR 4/3	45						
12-18	2.5Y 5/3	37	7.5YR 4/6	8	C	M	SCL	
	2.5Y 4/2	50	7.5YR 5/8	5	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Waters of the U.S. Data Sheet

Verified EM, AC 7/25/2018

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes study		**Feature ID:** ~~07-G~~ 9A **Stream Order:** 1
Date: ~~4/13/15~~ 7/25/2018	**State:** MD	**Photos:** ~~9384, 9385~~ ph 1, US ph 2 DS
Crew: ~~KJH, KH~~ EM, AC	**County:** Prince George's	**Last Flag Number:** ~~07-G~~ 9A-8

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊘ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: 1-3' deep open water in depressional area at culvert outfall. Drains as sheet flow ~~to ephemeral channel W74PG~~. and subterranean for a portion, centuries and flows into 9B

Hydrologic Connectivity –	Upstream: culvert outfall draining uplands	Downstream: ~~W74PG~~ 9B	Adjacent/Abutting: None 9B

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: ~~30'~~ 5' average	☑ Silts	☐ Sands	☑ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 1-3'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☑ ≤4:1			

Notes: Disturbed area, excessive trash and vines covering the ground making conveyances difficult to see. Sediment accumulation heavy from runoff.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: ~~February~~ June Year: ~~2015~~ 2018
⊗ No rain	⊗ 0-0.5	○ ○ ○ ○ ○ ○ ○ ⊗ ☑ ○ ○ ○ ○	
☑ Light rain	○ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6	
○ Heavy Rain	☑ >1	Severe Drought / Moderate Drought / Normal / 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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9AA	**Stream Order:** 1st
Date: 8 Aug. 2018	**State:** MD	**Photos:** 11(DS), 12(DS)	
Crew: DRS, AC	**County:** PG	**Last Flag Number:** 4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No hydric soil, flow from recent rain, defined bed/bank

Hydrologic Connectivity –	Upstream: None	Downstream: Yes	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'		☐ Silts	☒ Sands	☐ Muck	RB: forest (bamboo), paved road	
☐ Artificial (man-made)	Depth: 0.5'		☒ Cobbles	☒ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability: Minor		☐ Bedrock	☐ Concrete		LB: Forest, mowed lawn	
☐ Other:			Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1				

Notes: Riprap lined channel extends upslope to culvert beneath I-495, Natural substrate in upstream portion

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: July Year: 2018
⊗ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	● 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		● 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

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

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Verified EM, AC

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: ~~I-495 I Rvm – PG County~~ I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: ~~4/15/15~~ 7/25/18

Applicant/Owner: SHA State: MD Sampling Point: ~~07-I-UPL~~ 9B-UPL

Investigator(s): ~~KJH KH~~ EM, AC Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.959739 Long: -76.867490 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: NA

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

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

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

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

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

Remarks: Plot point located just east of ~~07-I-WET~~ 9B-WET

ph 7 (NE)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): –
Water Table Present?	Yes ✓	No ____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

~~0.10" of rain previous night~~

Series of recent heavy rains over past 3-4 days.

Sampling Point: 9B-UPL ~~9I-UPL~~

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

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Sapling/Shrub Stratum (Plot size: 10')			
1. Lonicera morrowii	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

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

Woody Vine Stratum (Plot size: 10')			
1. Ampelopsis brevipedunculata	90	Y	UPL
2. Lonicera japonica	2	N	FACU
3. Rosa multiflora	5	N	FACU
4.			
5.			
	97 = Total Cover		

50% of total cover: 48.5 20% of total cover: 19.4

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	12	x 4 =	48
UPL species	90	x 5 =	450
Column Totals:	102 (A)		498 (B)

Prevalence Index = B/A = 4.9

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

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

No hydric veg indicators

SOIL

Sampling Point: 9B-UPL ~~07 I UPL~~

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100	–	–	–	–	Silt loam	
4-10	10YR 3/2	95	7.5YR 5/6	5	C	M	Silt loam	
10-14	7.5YR 6/10	80	7.5YR 6/8	20	C	M	loamy sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/25/18

Applicant/Owner: SHA State: MD Sampling Point: 9B-WET

Investigator(s): EM, AC Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): MLRA 149A Lat: 38.959791 Long: -76.867599 Datum: NAD83

Soil Map Unit Name: Udorthents NWI classification: PEMIC

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

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

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

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

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

Remarks:

Feature drains to Waters 9C

Photo 3 (open water, N) photo 4 (NE)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

* Surface Water Present?	Yes ✓	No ____	Depth (inches): 6"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

* Surface water present in approximately 20% of plot.

* Recent heavy rain over the past 3-4 days.

Feature includes 1-2' deep pool

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 9B-WET

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	20	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling/Shrub Stratum (Plot size: 10')			
1. Fraxinus pennsylvanica	5	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 10')			
1. Symphyotrichum lateriflorum	10		FAC
2. Carex sp.	5		N/A
3. Toxicodendron radicans	10	✓	FAC
4. Ampelopsis brevipedunculata	95	✓	UPL
5. Solanum dulcamara	15		FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	135 = Total Cover		
50% of total cover: 67.5	20% of total cover: 27		
Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

SOIL

Sampling Point: 98-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					SiL	
3-10	2.5YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	
10-14	7.5YR 6/4	70	7.5YR 6/8	30	C	M	LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.05ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway, Forest Distance to nearest roadway or other development ~75'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9B

Latitude 38.959796 Longitude -76.867592

Prepared by: AG Date 7/25/18

Wetland Impact:
Type ~ Area ~

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓		✓		
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		✓		
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes: Receives hydrology from Waters 9A; Large open water portion

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 8/8/18

Applicant/Owner: SHA State: MD Sampling Point: 9BB-UPL

Investigator(s): DRS, AC Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 50%

Subregion (LRR or MLRA): MLRA 149A Lat: 38.976573 Long: -76.872787 Datum: NAD83

Soil Map Unit Name: Udorthents, highway, 0-15% slopes NWI classification: N/A

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

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

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

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

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

Remarks:

Photo 15(W)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

9BB-UPL

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

Sampling Point: _____

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. Liquidambar styraciflua	55	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Sapling/Shrub Stratum (Plot size: 30')			
1. Lonicera maackii	20	✓	UPL
2. Pyrus calleryana	15	✓	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Herb Stratum (Plot size: 30')			
1. Lonicera japonica	70	✓	FACU
2. Vitis vulpina	5		FAC
3. Toxicodendron radicans	15		FAC
4. Parthenocissus quinquefolia	10		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron radicans	15	✓	FAC
2. Parthenocissus quinquefolia	15	✓	FACU
3. Vitis vulpina	7		FAC
4.			
5.			
	37 = Total Cover		
50% of total cover: 18.5	20% of total cover: 7.4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

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

SOIL

Sampling Point: 9BB-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 4/2	100					SL	w/ gravel
3-10	7.5YR 4/4	100					SL	
10-16+	7.5YR 4/2	10					SC	
	5YR 4/6	90					SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 8/8/18

Applicant/Owner: SHA State: MD Sampling Point: BB-WET

Investigator(s): DRS, AC Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillside seep/depression Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR or MLRA): MLRA 149A Lat: 38.976492 Long: -76.872825 Datum: NAD83

Soil Map Unit Name: Udorthents, highway, 0-6% slopes NWI classification: PFO1B

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

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

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

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

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

Remarks:

Photo 13 (E)
Photo 14 (E)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Clay layer at 14".

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

Sampling Point: 9BB-WET

Tree Stratum (Plot size: Irregular)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	10	✓	FACW
2. Liquidambar styraciflua	30	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Sapling/Shrub Stratum (Plot size: Irregular)			
1. Viburnum dentatum	20	✓	FAC
2. Pyrus calleryana	8	✓	UPL
3. Hibiscus syriacus	3		UPL
4. Rubus arguta	6		FAC
5.			
6.			
7.			
8.			
	37 = Total Cover		
50% of total cover: 18.5	20% of total cover: 7.4		

Herb Stratum (Plot size: Irregular)			
1. Toxicodendron radicans	40	✓	FAC
2. Parthenocissus quinquefolia	20	✓	FACU
3. Ampelopsis brevipedunculata	5		UPL
4. Lonicera japonica	15		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size: Irregular)			
1. Toxicodendron radicans	12	✓	FAC
2. Ampelopsis brevipedunculata	10	✓	UPL
3. Lonicera japonica	3		FACU
4.			
5.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.5 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No __

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

SOIL

Sampling Point: 9BB-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 4/4	40					Fine SL	
	7.5 YR 4/2	60					Fine SL	
4-10	7.5 YR 4/2	85	7.5 YR 3/4	5	C	M	Fine SCL	
	7.5 YR 4/4	10					Fine SCL	
10-14	7.5 YR 4/1	95	7.5 YR 4/4	5	C	M	SCL	
14-17	2.5 YR 3/4	80					SC	Dense clay
*	5 YR 4/4	15					SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Dense clay layer starting at 14" causing a perched water table.

* Soil layer between 14-17" also contained 2.5YR 7/1 at 5%.

Wetland Function-Value Evaluation Form

Total area of wetland 1.2 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Residential, Institutional Distance to nearest roadway or other development Adjacent residences

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y ~200' to roadway

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? N Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 7BB

Latitude 38.976772 Longitude -76.872825

Prepared by: AC/DRS Date 8/8/18

Wetland Impact:
Type ____ Area ____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		2,4,5,6,8,13,15	✓	Long duration water retention time and active seeps suggest recharge/discharge is occurring.
Floodflow Alteration	✓		2,3,5,6,7,8,11,15,17,18	✓	Hydric soils + geomorphic position allow wetland to store "excess floodwaters from uplands, reducing flood damage to surrounding commercial/residential properties.
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1,2,3,5,6,7		Receives excess sediment/toxicants from roadway runoff.
Nutrient Removal	✓		3,5,7,8,9,10,11		Long duration water retention time and vegetation type/abundance sufficient for nutrient removal, not much excess nutrients.
Production Export	✓		1,2,4,7,12,13		Wildlife presence, wetland outlets to storm drain
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓		1,4,7,8,13,14,15,17,18,19,20	✓	Deer tracks present, flowering plants and springs with standing water.
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes: Source of hydrology is groundwater seepage in addition to roadway runoff from erosional gullies on hillslope. Drains to storm drain.

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 9C	**Stream Order:** 1
Date: 7/25/2018	**State:** MD	**Photos:** 5(DS), 6(US)	
Crew: EM, AC	**County:** PG	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of delineation. Significant bed/banks.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 9D, 9E (wetlands), 9R	Downstream: outside study area	Adjacent/Abutting: 9B

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3	☐ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Flows west from culvert + under I-495 exit ramp to culvert and outside study area.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: June Year: 2018
○ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	☑	○	○	○	○	
☑ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	☑ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 9CC	**Stream Order:** 1
Date: 8/9/2018	**State:** MD	**Photos:** 3(DS) 5(US); 8(US), 9(DS) perennial portion	
Crew: SW, AC	**County:** PG	**Last Flag Number:** 9CC-22	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	☑ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of delineation, defined bed/banks, headcut @ RW fence, receives additional surface flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 9GG, 9FF	Downstream: outside study area	Adjacent/Abutting: 9EE, 9DD

Feature Description: ***(check all that apply)*** Piped under I-495, convergence must be underground on other side of I-495.

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☐ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-3'	☑ Cobbles	☑ Gravel	☒ Other: riprap	
☑ Manipulated (man-altered)	Bank Erosion/stability: stable - rip rap lined banks	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Stream originates at concrete apron, natural channel but riprap on banks.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018												
☑ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified EM, AC

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: ~~4/15/15~~ 7/25/2018

Applicant/Owner: SHA State: MD Sampling Point: ~~07-H-UPL~~ 9D-UPL

Investigator(s): ~~KJH, KH~~ EM, AC Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.960353 Long: -76.865684 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: NA

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

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

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

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

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

Remarks:

Plot Point located just north of ~~07-H-WET.~~ 9D-WET

Ph 10 (N)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ✓ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ✓ No ____ Depth (inches): 10

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

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Rainfall previous ~~night~~ 3-4 days of heavy rainfall

~~0.10" of rain previous night~~

9D-UPL

Sampling Point: ~~07-H-UPL~~

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

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Catalpa speciosa	40	Y	FACU
2. Quercus palustris	10	N	FACW
3. Acer rubrum	30	Y	FAC
4. Fraxinus pennsylvanica	5	N	FACW
5.			
6.			
7.			
8.			
	85	= Total Cover	

50% of total cover: 42.5 20% of total cover: 17

Sapling/Shrub Stratum (Plot size: 20')			
1. Ulmus rubra	10	Y	FAC
2. Catalpa speciosa	5	Y	FACU
3. Allium vineale	2	N	FACU
4.			
5.			
6.			
7.			
8.			
	~~17~~ 17	= Total Cover	

50% of total cover: 8.5 20% of total cover: 3.4

Herb Stratum (Plot size: 5')			
1. Allium vineale	2	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2	= Total Cover	

50% of total cover: 1 20% of total cover: 0.4

Woody Vine Stratum (Plot size: 20')			
1. Lonicera japonica	90	Y	FACU
2. Toxicodendron radicans	10	N	FAC
3.			
4.			
5.			
	100	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	50	x 3 =	150
FACU species	137	x 4 =	548
UPL species	0	x 5 =	0
Column Totals:	202 (A)		728 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✓

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

No hydric veg indicators

SOIL

Sampling Point: ~~09-11-UPL~~ 9D-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 4/2	100	-	-	-	-	Silt loam	
7-12	10YR 5/3	60	-	-	-	-	silt loam	fill material mixed in
	5YR 5/8	40	-	-	-	-		
12-14	10YR 5/3	70	-	-	-	-	silt loam	mixed in fill
	5YR 5/8	30	-	-	-	-		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Mucky Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/25/18

Applicant/Owner: SHA State: MD Sampling Point: 9D-WET

Investigator(s): EM, AC Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.960322 Long: -76.865659 Datum: NAD83

Soil Map Unit Name: Udorthents NWI classification: PFO1B

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

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

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

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

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

Remarks:

Sparsely vegetated, concave PFO. Drains southwest to culvert under I-495 that connects to Waters 9C. Photo 8 (NE), photo 9 (SW) * Wetland is adjacent to Wetland 9E.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

*Surface Water Present?	Yes ✓	No ____	Depth (inches): 3
Water Table Present?	Yes ✓	No ____	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

*Surface water present throughout entire plot. Recent heavy rain over the past 3-4 days.

9D-WET

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: _____

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	10	✓	FACW
2. *Quercus laurifolia	15	✓	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Sapling/Shrub Stratum (Plot size: 20')			
1. Ulmus rubra	15	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron radicans	5	✓	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

* Quercus laurifolia rooted outside wetland, canopy covers wetland
* Several dead red maples.

SOIL

Sampling Point: 9D-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	70	7.5YR 4/4	30	C	M/PL	SiL	
4-9	10YR 5/3	60	7.5YR 5/6	40	C	M/PL	SiL	
9-13	10YR 5/2	50	7.5YR 4/6	10	C	M/PL	SiL	Mixed in all material
	2.5YR 6/6	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.03 ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway, Forest Distance to nearest roadway or other development ~80'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9D

Latitude 38.96272 Longitude -76.96577

Prepared by: EM Date 7/25/2018

Wetland Impact:
Type — Area —

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes: Retains large amount of water in a concave depression.

*Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 8/9/18

Applicant/Owner: SHA State: MD Sampling Point: DD-WET

Investigator(s): SW, AC Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.977193 Long: -76.871745 Datum: NAD83

Soil Map Unit Name: Fallsington-Urban land complex 0-5% slopes NWI classification: PEMIA

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

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

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

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

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

Remarks:

Photo - 4 looking west
Wetland located in the floodplain of Waters 966.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 1"

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

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

10% of wetland with Surface Water
Water table assumed due to Saturation of overall wetland at surface.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 9DD-WET

Tree Stratum (Plot size: 5'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Sapling/Shrub Stratum (Plot size: 5'x20')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Herb Stratum (Plot size: 5'x20')			
1. Leersia oryzoides	30	✓	OBL
2. Leersia virginica	15	✓	FACW
3. Carex lurida	5		OBL
4. Persicaria maculosa	5		FACW
5. Carex vulpinoidea	5		FACW
6. Mentha spicata	10		FACW
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		

50% of total cover: 35 20% of total cover: 14

Woody Vine Stratum (Plot size: 5x20')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: 9DD-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y2/1	100					LS w/	muck (alluvium? muck)
6-12	2.5Y4/2	95	2.5Y4/6	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils were not sampled

Wetland Function-Value Evaluation Form

Total area of wetland 4.01ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 10'

Dominant wetland systems present PEMIA Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9DD

Latitude 38.977193 Longitude -76.871745

Prepared by: SW/AC Date 8/9/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Verified EM, AC 7/25/2018

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

I-495/I-270 Managed Lanes Study

Project / Site :	~~Capital Beltway~~		Date :	~~7/22/04~~ 7/25/2018
Applicant / Owner :	SHA		County :	PG
Investigator :	~~BJG / KCG~~ EM, AC		State :	MD
Do Normal Circumstances exist on the site?		Yes		
Is the site significantly disturbed? (Atypical Situation)?		No	Community ID :	PEM2B
Is the area a potential Problem Area?		No	Transect ID :	~~W13~~ ~~W13~~ PG 9E-WET
(If needed, explain on reverse.)			Plot ID :	TP-7

Ph II (E)

~~KJH - 4/15/15~~

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Alisma plantago-aquatica*	H	OBL	9		
2 *Polygonum hydropiperoides*	H	OBL	10		
3 *Juncus canadensis*	H	OBL	11		
4 M: crostegium urnineum	H	FAC	12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water n/a (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
	√ Oxidized root channels in Upper 12 Inches
Depth to Free Water in Pit: n/a (in.)	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 0 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)

Remarks: ~~isolated wetland~~ drains to culvert and to 9C on opposite side of roadway
Receives contributing hydrology from 8S

Soils

Map unit name (Series and Phase): IUKA
Drainage class: moderately well drained
Taxonomy (Subgroup): Aquic Cumulic Haplorthents
Field observations confirm map type?

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-3		10YR4/2	7.5YR4/6	common/distinct	Silty clay loam
3-8		10YR4/2	7.5YR4/6	common/distinct	Silty clay loam
8-12		10YR4/3	7.5YR4/6	common/distinct	Silty clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks: ~~W13PG-1A thru 9A and W13PG-1B thru 9B~~

Wetland Function-Value Evaluation Form

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway, Forest Distance to nearest roadway or other development ~20 feet

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9E

Latitude 38.960092 Longitude -76.865762

Prepared by: EM Date 7/25/2018

Wetland Impact:
Type — Area —

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 8/9/18

Applicant/Owner: SHA State: MD Sampling Point: 9EE-WET

Investigator(s): SW, AC Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.976965 Long: 76.871665 Datum: NAD83

Soil Map Unit Name: Fallsington-Urban land complex, 0-5% slopes NWI classification: PFOA

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

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

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

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

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

Remarks:

- Photo - 6 looking west
- Wetland drains west to Waters 9CC.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1-2"
Water Table Present?	Yes ✓	No ____	Depth (inches): 1"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

* 1-2" of water present within majority of wetland on 5/7/19 field visit, water table @ 1"

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

Sampling Point: 9EE-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 20')			
1. Acer Saccharinum	5	✓	FAC
2. Liquidambar Styraciflua	30	✓	FAC
3. Nyssa Sylvatica	25		FAC
4. Betula nigra	10	✓	FACW
5. Acer rubrum	30	✓	FAC
6.			
7.			
8.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Sapling/Shrub Stratum (Plot size: 20')			
1. Liquidambar Styraciflua	15	✓	FAC
2. Nyssa Sylvatica	10	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 20')			
1. Lycopus americanus	10	✓	OBL
2. Toxicodendron radicans	5	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Woody Vine Stratum (Plot size: 20')			
1. Smilax rotundifolia	20	✓	FAC
2. Toxicodendron radicans	15	✓	FAC
3.			
4.			
5.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: 9EEENET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/2	98	7.5YR6/6	2	C	M	sl	
4-10	10YR5/2	25					scl	
	7.5YR5/8	75						
10-12+	10YR5/2	25	5YR5/8	20	C	M	SC	
	7.5YR5/8	55						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ✓ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

Soil profile data collected on 5/7/19

Wetland Function-Value Evaluation Form

9EE

Total area of wetland 0.02ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Residential, Forest Distance to nearest roadway or other development Adjacent to residence

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9EE

Latitude 38.976965 Longitude -76.871665

Prepared by: AC/SW Date 8/9/18

Wetland Impact:
Type ~~ Area ~~

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓		✓		
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓		✓		Chickens in abutting residence, excess nutrients Long duration water retention time
Production Export		✓	✓		
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				Bee activity present
Recreation		✓	✓		
Educational/Scientific Value		✓	✓		
Uniqueness/Heritage		✓	✓		
Visual Quality/Aesthetics		✓	✓		
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Verified EM, AC

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study		**Feature ID:** ~~W16PG~~ 9F **Stream Order:** 1
Date: ~~4/21/15~~ 7/25/2018	**State:** MD	**Photos:** ~~0011~~ 18(US), 19(DS)
Crew: ~~KJH, CCO~~ EM, AC	**County:** Prince George's	**Last Flag Number:** ~~Not flagged~~ N/A

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Intercepting ground water, flows to Waters 9G

Hydrologic Connectivity –	Upstream: ~~Ephemeral~~ grass swale	Downstream: ~~Outside study area~~ 9G	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-5'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 10-12"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: ~~March~~ June	Year: ~~2015~~ 2018
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	⊗	●	○	○	○	○		
● Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9FF	**Stream Order:** 1
Date: 8/9/18	**State:** MD	**Photos:** 10 (DS), 11 (US)	
Crew: SW, AC	**County:** PG	**Last Flag Number:** 9FF-5	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	● Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: * define channel, banks, eroded channel in swale, downcut + exposing roots			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: 9CC	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1-2'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3-6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor/Stable.	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July Year: 2018
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☒ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9G	**Stream Order:** 1
Date: 7/26/2018	**State:** MD	**Photos:** 3 US, 4 DS	
Crew: HT, AC	**County:** PG	**Last Flag Number:** 9G-SA, 9G-SB	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Large stream, flows through double culvert under I-495, approximately 3" flowing water and wetted width as wide as stream

Hydrologic Connectivity –	Upstream: 9H, 9I, 9F	Downstream: outside study area	Adjacent/Abutting: * PFO floodplain wetland, access denied

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 8'	☐ Silts	☒ Sands	☐ Muck	RB: Mowed Lawn
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	☒ Gravel	☒ Other: rip-rap	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Scrub-Shrub vegetation
☐ Other:	Stable - recently restored	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Large boulders placed along stream bank, stream has recently been restored

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: June	Year: 2018
○ No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○		
⊗ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	⊗ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☒ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9GG	**Stream Order:** 1
Date: 8/9/18	**State:** MD	**Photos:** 13(ds) 14(us)	
Crew: SW, AC	**County:** PG	**Last Flag Number:** 9GG-2	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: eroded channel – rip rapped for stability – begins at ROW fence.

Hydrologic Connectivity –	Upstream: Storm culvert	Downstream: 9CC	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2-3'	☐ Silts	☒ Sands	☐ Muck	RB: Mowed lawn + Forest	
☒ Artificial (man-made)	Depth: 3-5'	☐ Cobbles	☒ Gravel	☒ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: moderate/unstable	☐ Bedrock	☐ Concrete	rip-rap	LB: Forest	
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: rip/rapped eroded channel originating at end culvert flowing to 9CC.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July Year: 2018
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 8/9/18

Applicant/Owner: SHA State: MD Sampling Point: 9HH-WET

Investigator(s): SW, AC Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): None Slope (%): 0.5%

Subregion (LRR or MLRA): MLRA 149A Lat: 38.973209 Long: -76.868897 Datum: NAD83

Soil Map Unit Name: Zekiah and Issue Soils, frequently flooded NWI classification: PFO1A/B

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

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

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

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

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

Remarks:

Soil profile taken on 10/25/18 Abuts + drains to Waters 9II + 9Y

Photos 15-looking east 19-looking NW

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1"
Water Table Present?	Yes ✓	No ____	Depth (inches): 8" *
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 4" *

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

* 10-15% of wetland has Surface Water

*During Site visit on 10/25/2018 Saturation Started at 4" and water table was observed at 8".

- no rain within 24 hours of Site visit on 10/25/18.

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

Sampling Point: 9HH-WET

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	55	✓	FAC
2. Nyssa sylvatica	30	✓	FAC
3. Ulmus rubra	10		FAC
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		

Sapling/Shrub Stratum (Plot size: 30')			
1. Lindera benzoin	20	✓	FACW
2. Viburnum dentatum	10	✓	FAC
3. Acer rubrum	8	✓	FAC
4.			
5.			
6.			
7.			
8.			
	38 = Total Cover		
50% of total cover: 19	20% of total cover: 7.6		

Herb Stratum (Plot size: 30')			
1. Symplocarpus foetidus	40	✓	OBL
2. Microstegium vimineum	10		FAC
3. Boehmeria cylindrica	5		FACW
4. Impatiens capensis	5		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Woody Vine Stratum (Plot size: 30')			
1. Smilax rotundifolia	10	✓	FAC
2. Parthenocissus quinquefolia	5	✓	FACU
3.			
4.			
5.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: PHH-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y4/2	80	7.5YR4/6	20	C	M	CL	
4-12+	2.5Y5/1	75	7.5YR4/6	25	C	M	CL	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

soils investigated during site visit on 10/25/18

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.2ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest + Residential Distance to nearest roadway or other development ~150'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9HH

Latitude 38.973209 Longitude -76.868897

Prepared by: SW/AC Date 8/9/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		2,4,5,7,15		Wetland may be retaining excess floodwaters and storing for future discharge.
Floodflow Alteration	✓		2,3,5,6,7,8,9,10,13,14,16	✓	Retains and slows flow from 2 watercourses and sheet flow from surrounding uplands.
Fish and Shellfish Habitat	✓		1,2,3,4,9,10,12,14,15,16,17		Fish observed in abutting perennial stream. Many drainage features w/in wetland, cover objects. Possible fish habitat
Sediment/Toxicant Retention	✓		1,3,5,6,7,8,9,10,11,13,14	✓	Significant development located within 250 feet of wetland providing excess sources of sediment
Nutrient Removal	✓		3,4,5,9,10,11,12,14		Wetland is surrounded by contiguous forested wetlands/uplands, providing excess sources of nutrients in runoff.
Production Export	✓		1,4,5,6,8,10,11		Vegetation is not necessarily dense, but diverse.
Sediment/Shoreline Stabilization	✓		1,3,4,7,15		Herbaceous vegetation dominant along banks.
Wildlife Habitat	✓		1,3,4,6,7,8,14,15,17,18,19,20	✓	Wetland is surrounded by contiguous forested wetlands/uplands. Box turtle observed.
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 911	**Stream Order:** 1
Date: 8/9/2018	**State:** MD	**Photos:** 21(DS) 22(US)	
Crew: SW, AC	**County:** PG	**Last Flag Number:** 911-8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of delineation, receives groundwater influence, defined bed/banks

Hydrologic Connectivity –	Upstream: outside study area	Downstream: 9Y	Adjacent/Abutting: 9HH

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: moderate/some undercut areas	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: steeper at confluence. Drainage feature within wetland 9HH.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: July Year: 2018													
○ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:

Notes:

Verified 7/26/18 HT, AC

Stream Features
Field Sheet

9J

Date: ~~7/22/04~~ 7/26/18 Project Site: Capital Beltway Wetland # : ~~15 W15 PG~~

Observer(s): ~~BJG, KCG~~ HT, AC

~~KSH 4/21/15~~
HT, AC 7/26/18

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: _____
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 10' Depth ~~8"~~ 2-3' Avg. Water Depth 1'

Has stream morphometry been altered? yes Describe type and degree:
overwidened at pipe

Habitat and Pollutants:

Substrate (predominant type (s)): gravel and frogs
Habitat Complexity (Characterize) moderate-few deep pools, observed creek chubs near the outfall
Bank Erosion: Severe _____ Moderate _____ Minor √
Describe: slumping
Silt Deposition: minor
Pollutants (observation / potential sources): none

Stormwater Outfalls: 0

Riparian Zone:

Development: none- condos located upstream of study area
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: maple, arrowood, black willow

Approximate % shading by woody species: 10%
Steepness of adjacent slopes: 5%

Notes: ~~R2UB1, W15PG-1A thru 11A and W15PG- 1B thru 8B~~

Flows west from Waters 9L to culvert and under 495. Abuts Wetlands 9K, 9N.
ph 7 US, ph 8 DS
Receives contributing hydrology from Waters 90, 9P, 9M

Waters of the U.S. Data Sheet Verified 8/9/2018 SW, AC

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study	**Feature ID:** ~~08-B~~ 9JJ	**Stream Order:** 2
Date: ~~4/15/15~~ 8/9/18	**State:** MD	**Photos:** ~~8400~~ 23(us) 24(os)
Crew: ~~KJH, KH~~ SW, AC	**County:** Prince George's	**Last Flag Number:** ~~None - retained old boundary~~ 9JJ-17A, 9JJ-17B

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Base flow throughout channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: outside study area / 9MM	Downstream: Perennial channel ~~08-A~~ 9Y	Adjacent/Abutting: ~~Intermittent channel 08-C~~ 9KK

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-10'	☐ ✓ Silts	✓ Sands	☐ Muck		RB: Forest
☐ Artificial (man-made)	Depth: 1.5'	☐ ✓ Cobbles	✓ Gravel	☐ Other:		
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Forest / Paved Road
☐ Other:	Moderate erosion	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: Bed stabilization riprap present at confluence with 9Y.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ July Year: ~~2015~~ 2018													
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	●	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7/26/18

Applicant/Owner: SHA State: MD Sampling Point: 9K-wet

Investigator(s): HT, AC Section, Township, Range:

Landform (hillslope, terrace, etc.): bench/floodplain Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): MLRA 149A Lat: 38.982043 Long: -76.876318 Datum: NAD83

Soil Map Unit Name: Christiana-downer complex, 5-10% slopes NWI classification: PSSIE

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

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

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

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

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

Remarks:

Photo 9 – West

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1/2"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

wetland bench abutting stream 9J

* Surface water present in approximately 20% of plot
* Recent heavy rain the past week.

Soil sample not taken

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 9k-Wet

Tree Stratum (Plot size: ≈15')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Sapling/Shrub Stratum (Plot size: ≤15')			
1. Salix nigra	30	✓	OBL
2. Liquidambar styraciflua	40	✓	FAC
3. Morus alba	10		FACU
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Herb Stratum (Plot size: ≤15')			
1. Typha latifolia	30	✓	OBL
2. Leersia oryzoides	40	✓	OBL
3. Lonicera japonica	15		FACU
4. Campsis radicans	10		FAC
5. Lythrum salicaria	20		OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
50% of total cover: 57.5	20% of total cover: 23		

Woody Vine Stratum (Plot size: ≤15')			
1. Campsis radicans	10	✓	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

plot size limited by wetland size

SOIL

Sampling Point: 9K-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
*								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

* Soil sample not taken

Wetland Function-Value Evaluation Form

Total area of wetland 2.01ac Human made? No (but man-altered) Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Residential Distance to nearest roadway or other development ≈ 70'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9K

Latitude 38.982043 Longitude -76.876318

Prepared by: HT Date 7/26/18

Wetland Impact:
Type ——— Area ———

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 8/9/18

Applicant/Owner: SHA State: MD Sampling Point: 9RK-WET

Investigator(s): SW/AC Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): Concave Slope (%): 1-2%

Subregion (LRR or MLRA): MLRA 149A Lat: 38.971838 Long: -76.868609 Datum: NAD83

Soil Map Unit Name: Zs-Zekiah and Issue soils, frequently flooded NWI classification: PFO1A/B

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Photo -26 (SE)

Photo 1 (taken 8/10/18) - (W)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches):	0-3"
Water Table Present?	Yes ✓	No _____	Depth (inches):	0*
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches):	0"

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WT assumed, Saturation to surface evidenced by puddles & boot prints

- 30% of plot has Surface water

*During site visit on 10/25/18, water table present at 6". WO rain within 24 hours of 10/25/18 site visit.

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

Sampling Point: 9K-WET

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	✓	FAC
2. Liquidambar styraciflua	40	✓	FAC
3. Betula nigra	40	✓	FACW
4. Acer Saccharinum	15		FAC
5.			
6.			
7.			
8.			
	125 = Total Cover		
50% of total cover: 62.5	20% of total cover: 25		

Sapling/Shrub Stratum (Plot size: 30')			
1. Quercus phellos	8	✓	FACW
2. Acer rubrum	10	✓	FAC
3. Liquidambar Styraciflua	20	✓	FAC
4. Ulmus rubra	5		FAC
5. Fraxinus pennsylvanica	8	✓	FACW
6. Lindera benzoin	10	✓	FACW
7.			
8.			
	61 = Total Cover		
50% of total cover: 30.5	20% of total cover: 12.2		

Herb Stratum (Plot size: 30')			
1. Boehmeria cylindrica	15	✓	FACW
2. Carex Sp.	5		N/A
3. Pilea pumila	3		FACW
4. Persicaria hydropiper	5	✓	OBL
5. Toxicodendron radicans	10	✓	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	38 = Total Cover		
50% of total cover: 19	20% of total cover: 7.6		

Woody Vine Stratum (Plot size: 30')			
1. Smilax rotundifolia	10	✓	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: 9KK-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100	-	-	-	-	L	organics
2-4	10YR 4/1	90	7.5YR 5/6	10	C	M	SCL	
4-12+	10YR 5/1	75	7.5YR 5/8	25	C	M	SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Soil data recorded on 10/25/17

Wetland Function-Value Evaluation Form

9KK

Total area of wetland 0.8 ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? _____

Adjacent land use Forest, Residential Distance to nearest roadway or other development ~130 fence

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? gb

How many tributaries contribute to the wetland? several drainage features / 1 perennial stream Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. _____

Latitude 38.971838 Longitude -76

Prepared by: AC/SW Date 1/8

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		2,5,7,15		
Floodflow Alteration	✓		2,3,5,6,7,8,9,10,13,16	✓	Low-lying geomorphic position abutting stream, hydric soils allow wetland to store excess floodwaters.
Fish and Shellfish Habitat	✓		1,2,3,4,8,10,15,16,17		Many drainage features within wetland
Sediment/Toxicant Retention	✓		1,2,3,4,5,7,9,10,11,12,13	✓	Wetland downslope of residential neighborhood. Long duration water retention time.
Nutrient Removal	✓		3,4,7,9,12,14		Contiguous forest located upslope of wetland
Production Export	✓		1,2,4,6,8,10,11,	✓	Leaf decomposition/detritis in inundated pools
Sediment/Shoreline Stabilization	✓		1,3,4,7,14,		
Wildlife Habitat	✓		3,4,6,7,8,16,17,18,19,20	✓	Sewerline manhole present within wetland.
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes: Drains to 9JJ.

* Refer to backup list of numbered considerations.

Verified EM, SI 8/10/2018

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

8/10/2018

Project/Site: I-495/I-270 Managed Lanes Study ~~I-495 I-270 MLS PG County~~ City/County: Prince George's Sampling Date: 4/15/15

Applicant/Owner: SHA State: MD Sampling Point: ~~WL4PG-UPL~~ 9NN-UPL

Investigator(s): ~~KJH KH~~ EM, SI Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.971973 Long: -76.868898 Datum: WGS84

Soil Map Unit Name: Zekiah and Issue Soils NWI classification: NA

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

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

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

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

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

Remarks:

Plot point located on terrace just east of ~~WL4PG-WET~~ 9NN-WET

ph 6 (s)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ✓ No ____ Depth (inches): 10

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

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

~~0.10" of rain the previous night.~~

9KK-NN-UPL

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

Sampling Point: ~~WL4DG~~ ~~UPL~~

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2. Ilex opaca	20	Y	FAC
3. Liquidambar styraciflua	50	Y	FAC
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	

50% of total cover: 45 20% of total cover: 18

Sapling/Shrub Stratum (Plot size: 20')			
1. Liquidambar styraciflua	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	

50% of total cover: 10 20% of total cover: 4

Herb Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

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

Woody Vine Stratum (Plot size: 20')			
1. Smilax rotundifolia	10	Y	FAC
2. Lonicera japonica	15	Y	FACU
3.			
4.			
5.			
	25	= Total Cover	

50% of total cover: 12.5 20% of total cover: 5

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL

9KK-NN-UPL

Sampling Point: W14PG-UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	70	7.5YR 4/6	30	C	M/PL	Sandy loam	
3-11	5YR 5/6	100	–	–	–	–	Loamy sand	
11-13	10YR 4/2	80	7.5YR 5/8	20	C	C	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ✓

Remarks:

No hydric soil indicators

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** GL	**Stream Order:** 1
Date: 8/1/2018	**State:** MD	**Photos:** 3(US) 4(DS) 5(US) 6(DS) @ Inlet	
Crew: EM SI	**County:** PG	**Last Flag Number:** GL-16	7(DS) @ RCP outlet 8(US) @ POW 9(US) @ new inlet

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round) POW		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Ponded System with flowing perennial channel at inlet and outlet.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: outside study area	Downstream: GS	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: ~60' by 320' long	☐ Silts	✓ Sands	✓ Muck	RB: Housing
☐ Artificial (man-made)	Depth: 7 5'	☐ Cobbles	☐ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Housing
☐ Other:	moderate	Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			
Notes: Perennial channel expanded to ponded system with vegetated fringe and some riprap.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: July	Year: 2018
● No rain	● 0-0.5	○ -6 ○ -5 ○ -4	○ -3 ○ -2	○ -1 ○ 0 ○ 1	● 2 ○ 3	○ 4 ○ 5 ○ 6
○ Light rain	○ 0.5-1	Severe Drought	Moderate Drought	Normal	Moderately Wet	Severely Wet
○ Heavy Rain	○ >1					

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

Bed and Banks	Ordinary High Water Mark		
✓ 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/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	✓ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9LL	**Stream Order:** 1
Date: 8/10/2018	**State:** MD	**Photos:** 1 US, 2 DS	
Crew: EM, SI	**County:** PG	**Last Flag Number:** 9LL-8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			✓ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Incised bed and banks, downstream severely eroded with standing water			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 9KK (wetland)	Downstream: 9MM	Adjacent/Abutting: 9KK + 9NN

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	✓ Cobbles	☐ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable upstream, eroded DS	Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			

Notes: Cobble placed in channel, drains wetland to intermittent stream 9MM

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: July	Year: 2018
⊘ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4 Severe Drought	○ -3 ○ -2 Moderate Drought	○ -1 ○ 0 ○ 1 Normal
○ Light rain	● 0.5-1			
○ Heavy Rain	○ >1			● 2 ○ 3 Moderately Wet ○ 4 ○ 5 ○ 6 Severely Wet

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

Bed and Banks	Ordinary High Water Mark		
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	✓ 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:

Notes:

Final

Waters of the U.S. Data Sheet Verified EM, SI 8/1/2018

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study		**Feature ID:** ~~08-D~~ 9M	**Stream Order:** 1
Date: ~~4/21/15~~ 8/1/2018	**State:** MD	**Photos:** ~~004-007~~ 10 (US) @ cattail, 11 US @ ditch 12 US, 13 DS	
Crew: ~~KJH, CCO~~ EM, SI	**County:** Prince George's	**Last Flag Number:** ~~08-D-1A&B~~ 9M-13	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intercepting ground water, 8" deep pools			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~Ephemeral swale~~ roadside ditch	Downstream: ~~W15~~ 9J	Adjacent/Abutting: ~~None~~ 9N

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 8"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:	Minor erosion	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☑ ≤4:1			

Notes: Base flow goes underground in two sections of reach, weak bed and bank in one area @ DS section extended US section and flagged section of channel that appears to have migrated since 2015.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ July Year: ~~2015~~ 2018														
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	⊗	●	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☑ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Verified EM, SJ 8/10/18

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study		**Feature ID:** ~~08-C~~ 9MM **Stream Order:** 1
Date: ~~4/15/15~~ 8/10/18	**State:** MD	**Photos:** ~~8462~~ 3 US, 4DS
Crew: ~~KJH, KH~~ EM, SJ	**County:** Prince George's	**Last Flag Number:** ~~08-C-3A&B~~ n/a

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Intercepting ground water, 9NN (wetland)

Hydrologic Connectivity –	Upstream: ~~Outside study area~~ 9LL	Downstream: Perennial channel ~~08-B~~ 9JJ	Adjacent/Abutting: ~~Wetland W14PG~~ 9KK, 9NN

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☑ Silts	☐ Sands	☑ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 8"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ July Year: 2018 ~~2015~~												
◉ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	⊗	●	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 8/1/2018

Applicant/Owner: SHA State: MD Sampling Point: 9N-WET

Investigator(s): EM, SI Section, Township, Range:

Landform (hillslope, terrace, etc.): Toe of slope / floodplain Local relief (concave, convex, none): Concave Slope (%): 2%

Subregion (LRR or MLRA): MLRA 149A Lat: 38.981918 Long: -76.876342 Datum: NAD83

Soil Map Unit Name: UdaF: Udorthents highway, 0-65% slopes NWI classification: PSSA

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

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

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

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

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

Remarks: Excessive sediment accumulation due to adjacent roadway runoff and intermittent stream 9M deposits runoff

ph 14 (NW) ph 15 (N)

* Wetland drains north to Waters 9J and 9O. Also abuts Waters 9M.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): <1" in 10% of plot
Water Table Present?	Yes ✓	No ____	Depth (inches): 3"
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Ran w/in 24 hours. Floodplain wetland receives runoff from abutting stream and adjacent roadway

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

Sampling Point: 9N-WET

Tree Stratum (Plot size: *)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	5	Y	FAC
2. Liquidambar styraciflua	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling/Shrub Stratum (Plot size: *)			
1. Rosa multiflora	20	Y	FACU
2. Fraxinus pennsylvanica	5		FACW
3. Liquidambar styraciflua	10	Y	FAC
4. Diospyros virginiana	2		FAC
5. Viburnum dentatum	5		FAC
6.			
7.			
8.			
	42 = Total Cover		
50% of total cover: 21	20% of total cover: 8.4		
Herb Stratum (Plot size: *)			
1. Glyceria striata	35	Y	OBL
2. Dichanthelium clandestinum	25	Y	FACW
3. Mimulus ringens	5		OBL
4. Carex lurida	5		OBL
5. Persicaria longiseta	3		FAC
6. Leersia oryzoides	10		OBL
7. Typha latifolia	3		OBL
8. Echinochloa muricata	5		FACW
9. Impatiens capensis	10		FACW
10. Parthenocissus quinquefolia	8		FACU
11. Campsis radicans	8		FAC
12.			
	117 = Total Cover		
50% of total cover: 58.5	20% of total cover: 23.4		
Woody Vine Stratum (Plot size: *)			
1. Parthenocissus quinquefolia	8	Y	FACU
2.			
3.			
4.			
5.			
	8 = Total Cover		
50% of total cover: 4	20% of total cover: 1.6		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

Irregular plot, approximately 25' radius *

Several dead + dying trees in plot

SOIL

Sampling Point: 9N-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5YR 4/4	95	2.5YR 4/6	5	C	M	SCL	
6-9	2.5YR 4/6	100	-	-	-	-	LS	
9-12+	10.5YR 4/2	85	5YR 5/6	15	C	M	SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Problematic hydric soils due to accumulated sediment caused by adjacent roadway runoff. Consistenly getting hydric soils beginning between 9" and 12" throughout wetland.

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.02ac Human made? no Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway, Forest Distance to nearest roadway or other development ~30'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9N

Latitude 38.981918 Longitude -76.876342

Prepared by: EM Date 8/1/2018

Wetland Impact:
Type — Area —

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified EM, SI

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

8/10/2018

Project/Site: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 4/15/15

Applicant/Owner: SHA State: MD Sampling Point: ~~W-14-PG-WET~~ 9NN-WET

Investigator(s): ~~KJH KH~~ EM, SI Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.971928 Long: -76.668978 Datum: WGS84

Soil Map Unit Name: Zekiah and Issue Soils NWI classification: PFO1B

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

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

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

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

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

Remarks:

Wetland at toe of roadway embankment that drains to intermittent channel ~~C~~ 9NN.

Ph 5 looking S

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): 0
Water Table Present?	Yes ✓	No ____	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

~~Photo #9401.~~

~~0.10" of rain the previous night.~~

Surface water present within wetland outside plot point.

~~WILPG-WET~~ 9NN-WET

Sampling Point: _____

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

Tree Stratum (Plot size: 20x5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	Y	FAC
2. Liquidambar styraciflua	40	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		

50% of total cover: 35 20% of total cover: 14

Sapling/Shrub Stratum (Plot size: 20x5')			
1. Liquidambar styraciflua	10	Y	FAC
2. Acer rubrum	20	Y	FAC
3. Ilex opaca	5	N	FAC
4. Viburnum dentatum	2	N	FAC
5.			
6.			
7.			
8.			
	37 = Total Cover		

50% of total cover: 18.5 20% of total cover: 7.4

Herb Stratum (Plot size: 20x5')			
1. Festuca rubra	30	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		

50% of total cover: 15 20% of total cover: 6

Woody Vine Stratum (Plot size: 20x5')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL

Sampling Point: 9NN-WET ~~W14 PG WET~~

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100	–	–	–	–	Silt loam	
2-14	2.5Y 4/2	80	7.5YR 5/8	20	C	PL/M	Silty clay loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.01ac Human made? no Is wetland part of a wildlife corridor? no or a "habitat island"? no

Adjacent land use Forest, paved road Distance to nearest roadway or other development ~35'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? high

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9NN

Latitude 38.971928 Longitude -76.868978

Prepared by: EM Date 8/10/2018

Wetland Impact:
Type — Area —

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 90	**Stream Order:** 1
Date: 8/1/2018	**State:** MD	**Photos:** 16 US, 17 DS	
Crew: EM, SI	**County:** Prince George's	**Last Flag Number:** 90-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			⊗ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Adjacent intermittent stream flowing, no flow but has bed and banks, connects wetland to perennial stream			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 9N	Downstream: 9J	Adjacent/Abutting: 9N

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1'		☒ Silts	☒ Sands	☐ Muck		RB: Forest, Paved Road
☐ Artificial (man-made)	Depth: 1.5'		☐ Cobbles	☐ Gravel	☒ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete	riprap @DS end		LB: Forest, Paved Road
☐ Other:	Moderate, active erosion in parts		Side slope: ☒ ≥1:1	☐ 2:1	☐ 3:1	☐ ≤4:1	

Notes: Rip-rap @ DS end, drains wetland and flows to perennial channel 9K

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: July	Year: 2018			
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	◐	●	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes study		**Feature ID:** 900	**Stream Order:** 1
Date: 6/01/2018	**State:** MD	**Photos:** 805, 905	
Crew: EM, SI	**County:** Prince George's	**Last Flag Number:** 900-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands ⊗ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Headcuts after sheet flow originating at culvert

Hydrologic Connectivity –	Upstream: uplands	Downstream: 9KK	Adjacent/Abutting: 9KK

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Sheet flow originates at culvert, mapped pipes show draining median of 495

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July Year: 2018
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9P	**Stream Order:** 1
Date: 8/1/2018	**State:** MD	**Photos:** 18 US 19 DS	
Crew: EM, SI	**County:** Prince George's	**Last Flag Number:** 9P-9	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		⊗ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: No hydric soils, channel begins in uplands after broad drainage patterns converge, pockets of standing water in channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: uplands	Downstream: 9J	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2' average		☒ Silts	☒ Sands	☒ Muck		RB: Forest + Paved road
☐ Artificial (man-made)	Depth: 3"		☐ Cobbles	☐ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability: minor/stable		☐ Bedrock	☐ Concrete			LB: Forest
☐ Other:			Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1				
Notes: Channel drains uplands and adjacent roadway							

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July	Year: 2018
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 7/28/18
Applicant/Owner: SHA State: MD Sampling Point: PP-WET
Investigator(s): HT, AC Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-1
Subregion (LRR or MLRA): 149A Lat: 38.9863278 Long: -76.8802111 Datum: NAD83
Soil Map Unit Name: Christiana-Downer Complex, 5-10% slopes NWI classification: PFO1A/B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:
Access was denied to this property, so detailed investigations were not possible. Data form completed based on observations made from roadway. No test plot location GPS'd within wetland since access was not possible.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:
Disturbed by recent stream stabilization activity

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

Sampling Point: PPP-WET

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis			FACW
2. Acer rubrum			FAC
3. Liquidambar styraciflua			FAC
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

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

Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

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

Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

- Contains new plantings along stream
- Potential tree canopy species were noted but accurate percentages could not be recorded due to no access. Hydrophytic vegetation assumed based on observed species.
- Shrub + herbaceous species could not be observed.

SOIL

Sampling Point: PP-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** _____

Remarks:

Soils were not sampled

Wetland Function-Value Evaluation Form

Total area of wetland ~0.12ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No
wetland limits approx, no access granted.

Adjacent land use Forest Distance to nearest roadway or other development ~ 50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? mid.

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9PP

Latitude 38,986327 Longitude -76,880211

Prepared by: MN, AC Date 1/25/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____
no access granted, limits approx.

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization	✓				
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9QQ	**Stream Order:** 1
Date: 11/16/2018	**State:** MD	**Photos:** 5 DS 6 DS	
Crew: MW, AC, SP	**County:** PG	**Last Flag Number:** 9QQ-8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	✓ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Channel originates at culvert and transitions to RH Channel Downstream. Flowing during field assessment

Hydrologic Connectivity –	Upstream: None	Downstream: 9J	Adjacent/Abutting: 9SS

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1.5'	☐ Cobbles	✓ Gravel	✓ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	riprap	LB: Forest
☐ Other:	minor/Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			

Notes: Riprap lined at culvert and flows to DS culvert with 9SS abutting

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: October Year: 2018
✓ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4 ○ -3 ○ -2 ○ -1 ○ 0 ○ 1 ○ 2 ○ 3 ● 4 ○ 5 ○ 6	
○ Light rain	○ 0.5-1	Severe Drought / Moderate Drought / Normal / Moderately Wet / Severely Wet	
○ Heavy Rain	● >1		

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

Bed and Banks	Ordinary High Water Mark		
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Verified EM, AC, SI

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study		**Feature ID:** ~~07-F~~ 9R **Stream Order:** 1
Date: ~~04/13/15~~ 7/25/2018 & 8/1/2018	**State:** MD	**Photos:** ~~9377~~ ph 13 US ph 14 DS 26(N) 27US, 28 DS
Crew: ~~KJH, KH~~ EM, AC, SI	**County:** Prince George's	**Last Flag Number:** ~~9a&9b~~ N/A

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Water in channel, not flowing, 1' deep pools in some areas

Hydrologic Connectivity –	Upstream: ~~Culvert outfall~~ uplands	Downstream: ~~Outside study area~~ 9C	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-5	☑ Silts	☐ Sands	☑ Muck	RB: Scrub shrub
☑ Artificial (man-made)	Depth: 1.5'	☐ Cobbles	☑ Gravel	☑ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Leaves	LB: Scrub shrub
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~February~~ June Year: ~~2015~~ 2018													
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	⊗	●	○	○	○	○	
● Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9RR	**Stream Order:** 1
Date: 11/16/2018	**State:** MD	**Photos:** 7 US & DS	
Crew: MN, AC, SP	**County:** PG	**Last Flag Number:** 9RR-15	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☑ RPW – Seasonal (must flow at least 3 months a year)	☑ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			☑ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Channel originating from culvert, becomes RPW where it intercepts groundwater + recieves hydrology from adj. wetland.

Hydrologic Connectivity –	Upstream: N/A	Downstream: 9J	Adjacent/Abutting: ATT

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-3'	☐ Cobbles	☑ Gravel	☑ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	riprap	LB: Forest
☐ Other:	moderate	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☑ ≤4:1			

Notes: Natural Channel with some riprap @ culverts. Channel severly incised in 50% of channel length.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: Oct Year: 2018												
☑ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 11-16-18

Applicant/Owner: SHA State: MD Sampling Point: 955-WET

Investigator(s): MN, AC, SP Section, Township, Range: —

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.982103 Long: -76.877689 Datum: NAD83

Soil Map Unit Name: Issue Urban land Complex, occasionally flooded NWI classification: PFO1A

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:
Photo 4 (NW)
Floodplain wetland abutting Waters 9QQ.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): * 1/2
Water Table Present?	Yes ✓	No ____	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:
* Surface water in approximately 5% of plot (narrow drainage feature w/ in wetland).

Heavy precipitation within the last 24 hours.

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

Sampling Point: 955-WET

Tree Stratum (Plot size: Irregular)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	15	✓	FAC
2. Acer rubrum	10	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 25		
Sapling/Shrub Stratum (Plot size: Irregular)			
1. Liquidambar styraciflua	5	✓	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: Irregular)			
1. Reynoutria japonica	40	✓	UPL
2. Lonicera japonica	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Woody Vine Stratum (Plot size: Irregular)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

Heavy leaf litter from surrounding trees. Plot was irregular & the size of the entire wetland ~ 50' long by 20' wide.

SOIL

Sampling Point: 9SS-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	65					SCL	Soils appear disturbed
	7.5YR 4/3	35						
2-6	10YR 3/2	95	7.5YR 4/4	5	C	M	SCL	
6-9	10YR 3/2	30	7.5YR 4/4	20			SCL	
	10YR 4/3	50						
9-12	5YR 4/6	60					SCL	Fill material
	10YR 3/2	40						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Soils compact + disturbed in portions of wetland.

Wetland Function-Value Evaluation Form

9SS

Total area of wetland ~0.03ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, residential, Roadway, Park Distance to nearest roadway or other development ~20' to residence

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9SS

Latitude 38.982103 Longitude -76.877689

Prepared by: AL Date 11-16-18

Wetland Impact:
Type — Area —

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				Abuts 9RR
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 9T	**Stream Order:** 2
Date: 7 Aug. 2018	**State:** MD	**Photos:** 1 US, 2 DS	
Crew: DRS, AC	**County:** PG	**Last Flag Number:** 9T-10A, 9T-10B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Good flow, size, fish - channel is dry east of I-495 but appears to intercept groundwater

Hydrologic Connectivity –	Upstream: 9U, 9V	Downstream: outside study area	Adjacent/Abutting: 9W, 9V

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
⊗ Natural Channel Shape	Width: 6'	☐ Silts	⊗ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2.5'	⊗ Cobbles	⊗ Gravel	☐ Other:	
⊗ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	⊗ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ⊗ 3:1 ☐ ≤4:1			

Notes: Stream flows through large culvert beneath I-495 and becomes concrete at downstream end.

Weather/Precipitation Conditions: Minnows observed, exposed sewer pipe, considerable bamboo.

During Field Visit	Inches of Rain Within Last Week
⊗ No rain	○ 0-0.5
○ Light rain	○ 0.5-1
○ Heavy Rain	⊗ >1

Monthly Drought Condition
NCDC Regional PDSI **Month:** July **Year:** 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		
○ -6	○ -5	○ -4	○ -3	○ -2	○ -1	○ 0	○ 1	● 2	○ 3	○ 4	○ 5	○ 6

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

Bed and Banks	Ordinary High Water Mark			
⊗ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 11-16-18

Applicant/Owner: SHA State: MD Sampling Point: 9TT-WET

Investigator(s): MN, AC, SP Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.980979 Long: -76.876802 Datum: NAD83

Soil Map Unit Name: Issue - Urban Land complex, occasionally flooded NWI classification: PFOIE

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:

PFO wetland drains to Waters 9RR through narrow outlet, w/riprap along slope
photo 9 (SE)

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): *2-8"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Heavy precipitation w/in the last 24 hours.
*Surface water present in approximately 85% of plot.

9TF WET

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: _____

Tree Stratum (Plot size: Irregular)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	✓	FAC
2. Pyrus calleryana	6		UPL
3. Prunus serotina	7		FACU
4.			
5.			
6.			
7.			
8.			
	63	= Total Cover	
50% of total cover: 31.5		20% of total cover: 12.6	

Sapling/Shrub Stratum (Plot size: Irregular)			
1.			
2. Viburnum dentatum	10	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	
50% of total cover: 5		20% of total cover: 2	

Herb Stratum (Plot size: Irregular)			
1. Lonicera japonica	7	✓	FACU
2. Smilax rotundifolia	5	✓	FAC
3. Reynoutria japonica	10		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	22	= Total Cover	
50% of total cover: 11		20% of total cover: 4.4	

Woody Vine Stratum (Plot size: Irregular)			
1. Smilax rotundifolia	15	✓	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
50% of total cover: 7.5		20% of total cover: 3	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Plot is irregular – 30' wide by 50' long.

SOIL

Sampling Point: 9TT-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	60	7.5YR 5/8	40	C	M	SiC	
6-12+	10YR 4/2	55	5YR 5/6	45	C	M	SiC	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ✓ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Wetland I.D. 9TT

Total area of wetland ~0.04ac Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Latitude 38.980979 Longitude -76.876802

Adjacent land use Forest, residential, Roadway, Park Distance to nearest roadway or other development 20' to parking lot

Prepared by: AC Date 11-16-18

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Wetland Impact: Type ____ Area ____

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? High

Evaluation based on: Office ✓ Field ✓

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				outlets to 9RR
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 9U	**Stream Order:** 1st
Date: 7 Aug. 2018	**State:** MD	**Photos:** 3(DS), 4(US), 5(DS)	
Crew: DRS, AC	**County:** PG	**Last Flag Number:** 10	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Hydric soils at downstream end. Source is 3" pipes leading from houses.

Hydrologic Connectivity –	Upstream: None, upland drainage	Downstream: 9T	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2.5'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1'	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes: Flow originates from 3-4" pipes leading from houses on culvert sac; appears clean. At confluence with 9T slopes 2:1, remainder 4:1

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: July Year: 2018 (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php)													
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9UU	**Stream Order:** 1
Date: 11/19/18	**State:** MD	**Photos:** 10(US), 11(DS)	
Crew: MN, SP, VE	**County:** PG	**Last Flag Number:** 9UU-4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	✓ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Channel observed flowing after recent precip, drains adj uplands			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: 9TT	Adjacent/Abutting: 9TT

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: ~3'	☐ Silts	✓ Sands	✓ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	✓ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ✓ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: Oct Year: 2018												
✓ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	✓ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9V	**Stream Order:** 1st
Date: Feb/a 2018	**State:** MD	**Photos:** 7(DS), 8(DS), 9(US)	
Crew: DRS, AC	**County:** PG	**Last Flag Number:** 9V-10A, 9V-10B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: originates from spring discharges on slope

Hydrologic Connectivity –	Upstream: 9W (Wetland)	Downstream: 9T	Adjacent/Abutting: 9W

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 7-8'	☐ Silts	☒ Sands	☒ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Minor	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes: Upper half 8' wide originating at spring discharges; fibric muck and sand

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July Year: 2018
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	●	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 9VV	**Stream Order:** 1
Date: 12-12-18	**State:** MD	**Photos:** 1-US, 2-DS	
Crew: HT, EB	**County:** PG	**Last Flag Number:** 7	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: receives drainage from wetland (9WW) and flows to stream (9CC)			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 9WW	Downstream: 9CC	Adjacent/Abutting: 9WW

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☐ Silts	☒ Sands	☐ Muck		RB: Forest
☐ Artificial (man-made)	Depth: 0.5'	☐ Cobbles	☐ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☐ Concrete			LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1				
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: Nov Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lanes Study City/County: PG Sampling Date: 7 Aug 2018

Applicant/Owner: SHA State: MD Sampling Point: 9W-WET

Investigator(s): DRS, AC Section, Township, Range: _____

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.967401 Long: -76.869004 Datum: NAD83

Soil Map Unit Name: Christiana-Downer-Urban land complex 5-15% slopes NWI classification: PFO1E

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

Photo. 10 (NE)

Drains south to Waters 9W

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ✓	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Rainy period. Within plot, 5% of area w/ obvious surface saturation.

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

Sampling Point: 9W-WET

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	9		FAC
2. Magnolia virginiana	15		FACW
3. Pinus palustris	30	Y	FACW
4. Nyssa sylvatica	8		FAC
5. Pinus alba	25	Y	FACU
6.			
7.			
8.			
	77 = Total Cover		
50% of total cover: 38.5	20% of total cover: 15.4		

Sapling/Shrub Stratum (Plot size: 30)			
1. Magnolia virginiana	15	Y	FACW
2. Acer rubrum	6		FAC
3. Nyssa sylvatica	3		FAC
4. Liquidambar styraciflua	3		FAC
5. Ilex verticillata	15	Y	FACW
6. Clethra alnifolia	4		FACW
7. Viburnum dentatum	5		FAC
8.			
	51 = Total Cover		
50% of total cover: 25.5	20% of total cover: 10.2		

Herb Stratum (Plot size: 30)			
1. Hedera helix	70	Y	FACU
2. Osmundastrum cinnamomeum	3		FACW
3. Parthenocissus quinquefolia	5		FACU
4. Chasmanthium laxum	4		FAC
5. Toxicodendron radicans	2		FAC
6. Ilex opaca	5		FAC
7.			
8.			
9.			
10.			
11.			
12.			
	89 = Total Cover		
50% of total cover: 44.5	20% of total cover: 17.8		

Woody Vine Stratum (Plot size: 30)			
1. Smilax sotundifolia	60	Y	FAC
2. Parthenocissus quinquefolia	1		FACU
3. Toxicodendron radicans	1		FAC
4. Hedera helix	3		FACU
5.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL

Sampling Point: 9W-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10 YR 2/1	100					SL	Many rootlets/organics
1-9	10 YR 2/1	15	7.5 YR 3/4	5	C	M,PL	SCL	
	10 YR 3/1	80						
9-12	10 YR 3/1	73	7.5 YR 3/4	2	C	M	LS	
	10 YR 4/1	25						
12-14+	10 YR 5/2	99	7.5 YR 3/4	1	C	M	SL	w/ organic streaking

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil profile data collected on 11/12/18

Wetland Function-Value Evaluation Form

9W

Total area of wetland 0.2ac Human made? N Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, Residential, Roadway Distance to nearest roadway or other development ~50' to residence

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. _____

Latitude 38.76710 Longitude -76.867004

Prepared by: AG/DRS Date 8/7/18

Wetland Impact:
Type ~~~ Area ~~~

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization	✓				
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value	✓				
Uniqueness/Heritage	✓				
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: PG Sampling Date: 12-10-18

Applicant/Owner: SHA State: MD Sampling Point: WW-WE+

Investigator(s): HT, EB Section, Township, Range:

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

Subregion (LRR or MLRA): MLRA 149A Lat: 38.977203 Long: -76.872155 Datum: NAD83

Soil Map Unit Name: Fallsington-Urban land complex 0-5% slopes NWI classification: PFO1E

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

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

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

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

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

Remarks:

Photo 3- SE

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 0.5-3"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

* surface water in 75% of plot

Possible surface runoff from adjacent residential property may contribute to hydrology

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

Sampling Point: 9uw-wet

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	✓	FAC
2. Acer rubrum	10		FAC
3. Pyrus calleryana	40	✓	UPL
4. Salix nigra	20	✓	OBL
5.			
6.			
7.			
8.			
	90	= Total Cover	
50% of total cover: 45	20% of total cover: 18		

Sapling/Shrub Stratum (Plot size: 30')			
1. Liquidambar styraciflua	15	✓	FAC
2. Lonicera maackii	5	✓	UPL
3. Pyrus calleryana	10	✓	UPL
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		

Herb Stratum (Plot size: 30')			
1. Juncus effusus	15	✓	OBL
2. Microstegium vimineum	30	✓	FAC
3. [illegible]	5		FACW
4. Lonicera japonica	10		FACU
5. Rosa [illegible]	10		FAC
6. Rubus sp.	5		NI
7.			
8.			
9.			
10.			
11.			
12.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover: 15		

Woody Vine Stratum (Plot size: 30')			
1. Smilax rotundifolia	5	✓	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

SOIL

Sampling Point: WW-wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	85	7.5YR 4/4	15	C	M	SCL	
3-12+	10YR 4/3	65	7.5YR 4/6	25	C	M	SCL	gravel
			10YR 6/1	10	D	M		0

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils are inconsitant throughout wetland. Some areas of a brighter matrix w/ redox.

Wetland Function-Value Evaluation Form

Total area of wetland ~0.08ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Residential, forest, transportation Distance to nearest roadway or other development ~35'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? High

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 9WW

Latitude 38.977203 Longitude -76.872155

Prepared by: MT, EB Date 12/12/18

Wetland Impact:
Type ——— Area ———

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

VERIFIED 08/09/18' SW, AC

Verified at 1/10 site visit

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 Managed Lanes Study		**Feature ID:** ~~08-A~~ 9X	**Stream Order:** 2
Date: ~~4/15/15~~ 8/9/18'	**State:** MD	**Photos:** ~~9397~~ 5-7(DS) 8(DS) 20(US)-8/9/18 6(US) 7(DS) 8/7/18	
Crew: ~~KJH, KH~~ SW, AC	**County:** Prince George's	**Last Flag Number:** ~~08-A-2A&B~~ LIDAR downstream; 8D, 8C upstream	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Base flow throughout channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~Outside study area~~ 9X, 9Z, 9II, 9JJ	Downstream: ~~Culvert that drains~~ outside study area	Adjacent/Abutting: ~~Perennial channel 08-B~~ 9HH

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4-10'	✓ Silts	✓ Sands	☐ Muck	RB: Forest, mowed lawn (downstream of I-495)
✓ Artificial (man-made)	Depth: 1.5'	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: natural ~~Minor erosion~~ Moderate in portion	☐ Bedrock	✓ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Downstream (west of I-495) Completely concrete-lined.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: ~~March~~ July Year: ~~2015~~ 2018
◉ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4 ○ -3 ○ -2 ○ -1 ○ 0 ◉ 1 ● 2 ○ 3 ○ 4 ○ 5 ○ 6	
○ Light rain	○ 0.5-1	Severe Drought / Moderate Drought / Normal / Moderately Wet / Severely Wet	
○ Heavy Rain	● >1		

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

Bed and Banks	Ordinary High Water Mark		
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 92	**Stream Order:** 1
Date: 8 Aug 2018	**State:** MD	**Photos:** 8(DS), 9(US), 10(US)	
Crew: DRS, AC	**County:** PG	**Last Flag Number:** 92-2	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Hydric soils, good flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: 94	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 0.5'	☒ Cobbles	☒ Gravel	☒ Other: Riprap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Minor	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: Enters ROW from I-495 and discharges to 94 through culvert					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: July Year: 2018
○ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	● >1	○ -1 ○ 0 ○ 1	Normal
		● 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

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

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes		**Feature ID:** 10A	**Stream Order:**
Date: 5/9/18	**State:** MD	**Photos:** 1745-1750	
Crew: RL + MRS	**County:** PG	**Last Flag Number:** 10A-5	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands RG
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Deeply incised ephemeral, mostly dry w/ some standing water. Originates @ culvert under 495 N			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: culvert	Downstream: Outside study area	Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: <1"	☒ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Severely eroded	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018
⊗ No rain	⊗ 0-0.5	○ ○ ○ ○ ○ ○ ○ ◉ ○ ○ ○ ○ ○		
○ Light rain	○ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6		
○ Heavy Rain	◉ >1	Severe Drought / Moderate Drought / Normal / 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			
☐ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified 6/5/18 MRS

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM - PG County~~ 495/270 Managed Lane Study		**Feature ID:** ~~09-B~~ 10AF	**Stream Order:**
Date: ~~5/6/2015~~ 6/5/18	**State:** MD	**Photos:** ~~3~~ 1722 - 1727	
Crew: ~~KJH, ET~~ MRS/AGR	**County:** Prince George's	**Last Flag Number:** ~~09-B-12B~~ not flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Base flow observed with groundwater contribution			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~09-S~~ 10U	Downstream: ~~09-A~~ 10BB	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-6'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-3'	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately unstable	Side slope: ✓ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			

Notes: Originates at culvert outfall under I-495 and flows east to ~~09-A~~ 10BB lower ½ channel incised 3'

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: ~~April~~ May	Year: ~~2015~~ 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 495/270 MLS		**Feature ID:** 10AAA	**Stream Order:**
Date: 9/4/19	**State:** MD	**Photos:** 2997-3001	
Crew: MMS/EYG	**County:** Prince George's	**Last Flag Number:** Not flagged/GPS point	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	X RPW – Seasonal (must flow at least 3 months a year) R4SB	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during field visit. Drains road and receives groundwater downstream			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SW outfall pipe	Downstream: 10XX	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: 1-3'		Silts	X	Sands		Muck	RB: forest
	Artificial (man-made)	Depth: 0-6"	X	Cobbles	X	Gravel		Other:	
X	Manipulated (man-altered)	Bank Erosion/stability: unstable/eroded upstream	X	Bedrock		Concrete			LB: forest
	Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1						
Notes: Bedrock upstream by road / stable downstream. Channel loses distinctiveness down wetland 10XX.									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: AUGUST Year: 2019													
X	No rain	X	0-0.5												X		
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	Yes	X	Clear, natural line impressed on the bank		Sediment deposition		Sediment sorting
	No		Changes in the character of soil		Water staining	X	Scour
			Shelving	X	Presence of flood litter/debris	X	Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:
Notes:					

Waters of the U.S. Data Sheet

Verified MRS 5/15/18

Project: ~~I-495IRVM - PG County~~ 495/270 Managed Lane Study		**Feature ID:** ~~08-N~~ 10B	**Stream Order:** 1
Date: ~~5/1/15~~ 5/15/18	**State:** MD	**Photos:** ~~1745-1750~~	1751-1754
Crew: ~~KJH, ET~~ MRS/RL	**County:** Prince George's	**Last Flag Number:** ~~08-N-5B~~	10A/B-5

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flow observed from groundwater contribution at headcut			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Vegetated swale	Downstream: ~~08-P~~ 10C	Adjacent/Abutting: ~~W69PG~~ 10D

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 2-3'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6" – 12"	☑ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☑ 2:1 ☑ 3:1 ☐ ≤4:1			

Notes: Originates at head cut, flows through culvert to feature ~~08-P~~ 10C

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ May Year: ~~2015~~ 2018												
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified 6/5/18 MRS

Stream Features
Field Sheet
495/270 managed Lane Study

6/5/18

Date: ~~7/29/04~~ Project Site: ~~Capital Beltway~~ Wetland # : ~~18 09-A~~ 10BB

Observer(s): ~~BJG, KCG~~ MRS/AGA

~~KJH - 5/1/15~~
MRS

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: 4%
Approximate Drainage Basin: _____

Morphology:

channel incised

Avg. Channel Width 3' Depth 4" Avg. Water Depth 7"

Has stream morphometry been altered? yes Describe type and degree:
channelized – along radius; incised

Habitat and Pollutants:

Substrate (predominant type (s)): clay/sand
Habitat Complexity (Characterize) Low to moderate
lack of riffle/pool sequence, few deep pools
Bank Erosion: Severe _____ Moderate √ Minor _____
Describe: Heavy incision with a moderate amount of exposed roots
Silt Deposition: minimal
Pollutants (observation / potential sources): none

Stormwater Outfalls: 0

Riparian Zone:

Development: Inside of I-495 and MD 201 clover leaf
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: Maple, Sycamore, Virginia creeper

Approximate % shading by woody species: 85%
Steepness of adjacent slopes: 1%, 15%

Notes: R2UB2/3 Photos 1732-1735

Waters of the U.S. Data Sheet

Verified MRS 5/15/18

Project: ~~I-495 IRVM - PG County~~ 495/270 Managed Lane Study	**Feature ID:** ~~08-P~~ 10C	**Stream Order:**
Date: ~~5/1/15~~ 5/15/18	**State:** MD	**Photos:** ~~6~~ 1755-1757
Crew: ~~KJH, ET~~ MRS/RL	**County:** Prince George's	**Last Flag Number:** ~~08-P-6B~~ 10C-49/h

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Observed flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~W69PG~~ 10D	Downstream: Outside of study area	Adjacent/Abutting: ~~08-N, 08-Q~~ 10B, 10i

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: ~~4-20'~~ 6'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: ~~2-12"~~ 6-18"	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Severe erosion at downstream reach	Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1.			

Notes: Flows out of study area. Stable upstream, deeply incised and culvert failure downstream of 295 exit ramp.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ May Year: ~~2015~~ 2018												
◉ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 10CC	**Stream Order:**
Date: 6/5/18	**State:** MD	**Photos:** 1736 - 1738	
Crew: MRS/AGA	**County:** Prince Georges Co	**Last Flag Number:** 10CC - GA/GB	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: observed flow a few days after heavy rain. feature is dammed up by log, wetland 10' below log			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: seep	Downstream: 10' wet	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4-10'	☐ Silts	☒ Sands	☒ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately Stable	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018
☒ No rain	○ 0-0.5	○ ○ ○ ○ ○ ○ ○ ◉ ○ ○ ○ ○ ○		
○ Light rain	○ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6		
○ Heavy Rain	☑ >1	Severe Drought / Moderate Drought / Normal / 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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project:	495/270 MLS			**Feature ID:**	10 CCC	**Stream Order:**
Date:	12/4/19	**State:**	MD	**Photos:**	3856-3858	
Crew:	MRS/SJF	**County:**	Prince George's	**Last Flag Number:**	10CCC-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	X RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: channel small but contains some surface water ↳ flowing			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SW outfall from roadway	Downstream: 5' inlet pipe	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'-4'		✓ Silts	✓ Sands	☐ Muck	RB: forest
✓ Artificial (man-made)	Depth: 0.1-0.3'		☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete		
☐ Other:	moderate erosion		Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: forest

Notes: symetrical channel perpendicular to roadway → outfall/inlet structure on both ends

Weather/Precipitation Conditions:

During Field Visit	**Inches of Rain Within Last Week**	**Monthly Drought Condition NCDC Regional PDSI** http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php **Month:** October **Year:** 2019													
✓ No rain	✓ 0-0.5												X		
☐ Light rain	☐ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
☐ Heavy Rain	☐ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified MRS 5/15/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

455/270 Managed Lanes

Project / Site :	Capital Beltway	Date :	8/31/04
Applicant / Owner :	SHA	County :	PG
Investigator :	BJG, BMS, KCG MRS/RE	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PSS1B
Is the area a potential Problem Area?	No	Transect ID :	W69 ~~W69~~ PG 10D
(If needed, explain below.)		Plot ID :	TP-65
Explanation: Photos 1758-1761			

5/15/18

KJH - 5/1/15

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Salix nigra*	T	FACW+	9		
2 *Acer rubrum*	T	FAC	10		
3 *Liquidambar styraciflua*	T	FAC	11		
4 *Phragmites australis*	H	FACW	12		
5 *Typha latifolia*	H	OBL	13		
6 *Polygonum hydropiper*	H	OBL	14		
7 *Leersia oryzoides*	H	OBL	15		
8 Baccharis halimifolia	H	FAC	16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	√ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water <1 (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: 4 (in.)	___ Oxidized root channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 0 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)

Remarks: Drains waters 10E. Waters 10C downstream
>1in precip. in last week, 0.88 in past day
Water flowing through wetland

10D

Soils

Map unit name (Series and Phase):	Keyport silt loam	Drainage class	~~W69PG~~ moderately well drained
Taxonomy (Subgroup):	Paraquic Normudults	Field observations confirm map type?	No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-2		10YR3/2	7.5YR4/6	few/faint	Silt Loam
2+		10YR3/2			Silty Clay Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes	Is this Sampling Point Within a Wetland?	Yes
Hydric Soils Present?	Yes		

Remarks: Flags W69PG-1 thru 13, flags 7 and 8 cross over the wetland which extends outside of the study area, and flags W69PG-24 theu 26

↳ did not place new flags

Wetland Function-Value Evaluation Form

Total area of wetland <1/4 AC Human made?_____ Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Forest, roadway Distance to nearest roadway or other development 50-100'

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system?_____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10D

Latitude_____ Longitude_____

Prepared by: MRS Date 5/15/18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office_____ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization	✓				
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I270/495 Managed Lane Study City/County: Prince George's Sampling Date: 11/20/12

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 10DD-WET

Investigator(s): SH RS Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.982262 Long: -76.892649 Datum: NAD 83

Soil Map Unit Name: Zekiah and Issue soils, (ZS) NWI classification: PEMA

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

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

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

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

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

Remarks:

Receives hydrology from surrounding uplands and seasonal flooding from 10TT.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- X High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0.5"

Water Table Present? Yes ✓ No _____ Depth (inches): ~4"

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Flags: 10DD (1-25)

Buttressed tree roots.

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

Sampling Point: 16DD-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2. Quercus phellos	10	Y	FACW
3. Liquidambar styraciflua	10	Y	FAC
4.			
5.			
6.			
	40	= Total Cover	
50% of total cover: 20	20% of total cover: 8		

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 30 ft)			
1. Ilex verticillata	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
	15	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3		

Herb Stratum (Plot size: 30 ft)			
1. Symplocarpus foetidus	5	N	OBL
2. Smilax rotundifolia	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3		

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No __

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

SOIL

Sampling Point: ODD-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	75	10YR 7/2	20	D	M	Silty clay loam	Saturated
			10YR 5/6	5	C	M		
7-12	10YR 4/2	95	10YR 5/4	5	C	M	Silty Clay	Saturated
13-24	10YR 4/2	90	10YR 5/6	10	C	M	Clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.9AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 30 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 16DD

Latitude 38.982264 Longitude -76.892649

Prepared by: SH Date 11/21/18

Wetland Impact:
Type N/A Area N/A

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	2,7,9,13,		
Floodflow Alteration	Yes	1,2,3,4,5,6,7,8,9,10, 13,17,18	X	Large, flat area adjacent to perennial stream
Fish and Shellfish Habitat	No	2,3,4,14,16		
Sediment/Toxicant Retention	Yes	1,2,5,9,10,12,		
Nutrient Removal	Yes	3,4,5,10,		
Production Export	No	2,		
Sediment/Shoreline Stabilization	Yes	1,2,3,4,7,9,14,		
Wildlife Habitat	No	3,20		
Recreation	No			
Educational/Scientific Value	No	11		
Uniqueness/Heritage	No	1,		
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

verified MRS 5/15/18

Stream Features
Field Sheet

5/15/18 495/270 Managed Lane Study 10E

Date: ~~8/31/04~~ Project ~~Site: Capital Beltway~~ Wetland # : ~~W69~~ ~~08-0~~

Observer(s): ~~BJG, BMS, KCG~~ MMS/RL ~~KJH - 5/1/15~~

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: 1%
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 1.5' Depth 6" Avg. Water Depth 2"

Has stream morphometry been altered? yes Describe type and degree:
culvert

Habitat and Pollutants:

Substrate (predominant type (s)): ~~mud/sand/pebbles~~ silt, sand, cobbles
Habitat Complexity (Characterize) low

Bank Erosion: Severe _____ Moderate _____ Minor √
Describe:
Silt Deposition: significant
Pollutants (observation / potential sources): white foam, trash, road runoff

Stormwater Outfalls: 1

Riparian Zone:

Development: Left bank forested, Right bank I-495
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: Sweet gum, Ash, Pine

Approximate % shading by woody species: 55%
Steepness of adjacent slopes: Right bank 1% and Left bank 5%

Notes: R2UB2-3, Flags W69PG-13 thru 24 (no new flags); Photos 1762-1764
Drains to Wetland 10D

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I 270/495 Managed Lane Study City/County: Prince George's Sampling Date: 11/8/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 10EE-WET
Investigator(s): SH RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2%
Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.98666 Long: -76.89145 Datum: NAD83
Soil Map Unit Name: Christiana-Downer complex, (CrC) NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Receives hydrology from adjacent uplands, roadway, and outfalls.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 3-1"
Water Table Present? Yes ✓ No _____ Depth (inches): 0"
Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:
Flags: 10EE(1-15)

Buttressed tree roots.

Photos: 10EE-WET, North

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

Sampling Point: LOEE-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	Y	FAC
2. Liquidambar styraciflua	30	Y	FAC
3. Ulmus americana	15	Y	FAC
4.			
5.			
6.			
	75	= Total Cover	

50% of total cover: 37.5 20% of total cover: 15

Sapling Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	15	Y	FAC
2. Quercus phellos	15	Y	FACW
3.			
4.			
5.			
6.			
	30	= Total Cover	

50% of total cover: 15 20% of total cover: 6

Shrub Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	20	Y	FAC
2. Juncus effusus	15	Y	OBL
3. Smilax rotundifolia	15	Y	FAC
4. Lonicera japonica	10	N	FAC
5. Peltandra virginica	10	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Woody Vine Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	10	Y	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: 10EE-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	75	10YR 7/2	15	D	M	Silty Clay	Saturated
			10YR 3/2	10	D	M		
7-16	5YR 4/6	90	10YR 4/1	5	D	M	Silty Clay	Saturated
			2.5Y 5/6	5	C	M		
17-24	10YR 5/2	85	10YR 4/1	15	C	M	Clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.1 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 30'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10FE

Latitude 32.98665 Longitude -76.89145

Prepared by: SH Date 11/16/18

Wetland Impact: Type N/A Area N/A

Evaluation based on: Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	No			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

verified MRS 5/15/18

Project: ~~I-495 IRVM - PG County~~ 495/270 Managed Lane Study		**Feature ID:** ~~08-L~~ 10F	**Stream Order:**
Date: ~~4/30/2015~~ 5/15/18	**State:** MD	**Photos:** ~~4~~ 1765-1768, 1774-1777	
Crew: ~~KJH, ET~~ MRS/RL	**County:** Prince George's	**Last Flag Number:** ~~08-L-12B~~ 10F-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year) R4SB	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Observed flow in channel with contributing wetland hydrology			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside of study area	Downstream: Outside study area	Adjacent/Abutting: ~~08-M~~ 10P

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: ~~4-8'~~ 2-8'	☑ Silts	☑ Sands	☐ Muck		RB: Forest
☐ Artificial (man-made)	Depth: ~~3-10"~~ 1-8"	☑ Cobbles	☒ Gravel	☐ Other:		
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Forest
☐ Other:	Eroded at DS reach	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1				

Notes: Flows east from culvert under 295 SB to culvert under 295 NB; downstream end wider, deeper, and more incised

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: ~~March~~ May	Year: ~~2015~~ 2018
◉ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 295/1493 Managed Lane Study		Feature ID: 10FF	Stream Order: I
Date: 10/8/18	State: Maryland	Photos: Upstream, Downstream	
Crew: SH RS	County: Prince George's	Last Flag Number: 10FF-001a/001b	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year) R4SB	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: flowing at time of visit with water depths of 1".

Hydrologic Connectivity –	Upstream: N/A, culverted	Downstream: 10GG	Adjacent/Abutting: 10GG

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4'	☑ Silts	☒ Sands	☒ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 3'	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderately Stable	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: Year:												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊗	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes		**Feature ID:** 107	**Stream Order:**
Date: 5/15/18	**State:** MD	**Photos:** 1771-1773	
Crew: RL MRS	**County:** PG	**Last Flag Number:** 106-7	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
◯ TNW (Subject to ebb and flow)	◯ TNW – Perennial (Flowing year round)	◯ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands
	◯ RPW – Perennial (Flowing year round)		◯ Non-RPW erosional feature
			◯ Non-RPW with abutting wetland
			◯ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing water during site visit, but some spots are dry/standing water. ½-1" rain last night. Poorly defined bed & banks			◯ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Culvert	Downstream: Outside study area	Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2-4'	☐ Silts	☒ Sands	☒ Muck	RB: Forest
☐ Artificial (man-made)	Depth: <1-3'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Mild erosion	Side slope: ☒ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php									Month: May		Year: 2018		
⊗	No rain	◯	0-0.5	◯	◯	◯	◯	◯	◯	◯	◉	◯	◯	◯	◯	◯	
◯	Light rain	◯	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
◯	Heavy Rain	◉	>1	Severe Drought			Moderate Drought		Normal			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					
☒ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
Poorly defined	☐ Shelving	☐ Presence of flood litter/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 1495/220, Managed Lake Study City/County: Prince George's Sampling Date: 11/8/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 10GG - WET
Investigator(s): SH, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1%
Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.994764 Long: -76.877084 Datum: NAD 83
Soil Map Unit Name: Udorthents, UdaF NWI classification: PFO 1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
10GG is located east of 10FF and west of the MD 295 to MD 193 ramp.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.5"
Water Table Present?	Yes ✓	No _____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:
10GG receives hydrology from 10FF and runoff from adjacent uplands

Flags: 10GG (1-7)

Photos: 10GG-WET South
10GG-WET West

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

Sampling Point: 10GG-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	40	Y	FAC
2. Acer rubrum	25	Y	FAC
3. Nyssa sylvatica	20	Y	FAC
4. Ulmus americana	10	N	FAC
5.			
6.			
	95	= Total Cover	
50% of total cover: 47.5	20% of total cover: 19		

Sapling Stratum (Plot size: 30 ft)			
1. Ulmus americana	15	Y	FAC
2. Liquidambar styraciflua	10	Y	FAC
3. Acer rubrum	5	N	FAC
4.			
5.			
6.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30 ft)			
1. Smilax rotundifolia	50	Y	FAC
2. Toxicodendron radicans	25	Y	FAC
3. Lonicera japonica	10	N	FACU
4. Viburnum dentatum	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
50% of total cover: 45	20% of total cover: 18		

Woody Vine Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	5	Y	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No __

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

SOIL

Sampling Point: 1066-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	96	10YR 5/8	5	C	M	Silt loam	Saturated
			10YR 2/2	5	D	M		
6-12	10YR 3/2	95	10YR 5/6	5	C	M	Sand	Saturated
12-20	10YR 5/8	90	10YR 4/3	10	C	M	Silty clay loam	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.1A Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 20'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. LOGG

Latitude 38.99476 Longitude -76.87709841

Prepared by: SH Date 11/16/18

Wetland Impact:
Type N/A Area N/A

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	No			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

verified MRS 5/15/18

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

5/15/18

Project/Site: ~~I-495 TRUX - PG Co~~ 495/270 Managed Lanes Study City/County: PG Sampling Date: ~~5/11/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~08-WETLAND~~ 10 H

Investigator(s): ~~KWHITE~~ MRS/RL Section, Township, Range:

Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR or MLRA): MLRA 149A Lat: 38.989359 Long: -76.886719 Datum: WGS84

Soil Map Unit Name: Christiana-Downer complex NWI classification: PFO

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

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

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

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

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

Remarks:

Isolated PFO at toe of roadway embankment. Full of abandoned tires. Infiltrates as GW before draining to Waters 10C.

Photo ~~=~~ 1781 - 1785

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1" - 2"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Collects roadway drainage @ toe of slope

10H

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: [redacted]

Tree Stratum (Plot size: 5x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	Y	FAC
2. Liquidambar styraciflua	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 5x20')			
1. Acer rubrum	10	Y	FAC
2. Liquidambar styraciflua	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 5' R)			
1. Toxicodendron radicans	2	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 0.4		
Woody Vine Stratum (Plot size: 5' R)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

Sparse vegetation w/ water-stained leaves

SOIL

Sampling Point: [redacted]

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	70	2.5YR 4/4	30	C	M/PL	Silt loam	
6-12	5YR 5/6	100					Sandy loam F. II mixed in	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Contain fill + likely disturbed

Wetland Function-Value Evaluation Form

Final

Total area of wetland <¼ Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest, roadway embankment Distance to nearest roadway or other development ~ 50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10H

Latitude 38.98959 Longitude -76.886719

Prepared by: MRS Date 5/15/18

Wetland Impact:
Type PFO Area < ¼ Acre

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I 270/I 495 Managed Lane Study		**Feature ID:** 10HH	**Stream Order:** II
Date: 11/12/18	**State:** MD	**Photos:** Downstream, culvert	
Crew: SH TES	**County:** Prince George's	**Last Flag Number:** 10HH (1-4a/b)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊘ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit, with average depth of 3".

Hydrologic Connectivity –	Upstream: 10LL, 10MM	Downstream: Out of Study area	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1.5'	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☐ Concrete		LB: Scrub shrub
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Riprap added to increase stability, culverted under I-95.

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: November Year: 2018												
⊘	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊘	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	⊘	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lanes City/County: PG Sampling Date: 5/15/18

Applicant/Owner: SHA State: MD Sampling Point: IOI-Wet

Investigator(s): RL, MRS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Toe of road embankment Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR or MLRA): MLRA Lat: 38.989344 Long: -76.886886 Datum: NAD83

Soil Map Unit Name: Udorthents, highway/Christiana-Downer complex NWI classification: PFO

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

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

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

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

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

Remarks:
½-1" of rainfall last night. Photos 1787-1790

HYDROLOGY

Wetland Hydrology Indicators:

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

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [X] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 1
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

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

Remarks:

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

Sampling Point: UI Wet

Tree Stratum (Plot size: 15'x15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Red Maple Acer rubrum	20	Y	FAC
2. Black Gum Nyssa sylvatica	20	Y	FAC
3. Sweet Gum Liquidambar styraciflua	30	Y	FAC
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Sapling/Shrub Stratum (Plot size: 15'x15')			
1. Sweet Gum Liquidambar styraciflua	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 15	20% of total cover: 3		

Herb Stratum (Plot size: 10'x10')			
1. Cinnamon fern Osmundastrum cinnamomeum	15	Y	FACW
2. Sensitive fern Onoclea sensibilis	20	Y	FACW
3. Carex sp.	5	N	
4. Smilax rotundifolia	15	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		

Woody Vine Stratum (Plot size: 15'x10')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

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

SOIL

Sampling Point: 101-WX

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	70	7.5YR 3/3	30	C	M	Loam	Organic rich
4-8	7.5YR 3/2	90	7.5YR 4/4	10	C	M	Loam	Organic rich
8-12	7.5YR 4/3	50					Sandy Loam	Silt may be lower
	7.5YR 5/6	50						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland <1/4 AC Human made? NO Is wetland part of a wildlife corridor? Yes or a "habitat island"? NO

Adjacent land use forest Distance to nearest roadway or other development ~70'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10 I

Latitude 38.989344 Longitude -76.886886

Prepared by: MMS Date 5/15/15

Wetland Impact:
Type PFO Area <1/4 ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 5/15/18

Stream Features
Field Sheet

5/15/18 495/270 Managed Lanes Study 10J

Date: ~~8/31/04~~ Project Site: Capital Beltway Wetland # : ~~W68~~ ~~W68 PG~~

Observer(s): ~~BJG, BMS, KCG~~ MRS/RL

~~KSH - 4/30/15~~

Stream Flow:

Perennial: _____ Intermittent √ Ephemeral _____

Gradient: 2%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width ~~1.5'~~ 2' Depth ~~1"~~ 1-2" Avg. Water Depth <1"

Has stream morphometry been altered? yes Describe type and degree:
channelized and concrete lined
feature appears to intersect GW

Habitat and Pollutants:

Substrate (predominant type (s)): concrete

Habitat Complexity (Characterize) very low

Bank Erosion: Severe _____ Moderate _____ Minor √

Describe: _____

Silt Deposition: minor

Pollutants (observation / potential sources): none

Stormwater Outfalls: 0

Riparian Zone:

Development: Right bank ramp to I-495, Left bank forested

Riparian vegetation: Forest √ Shrubs _____ Herbs _____

Dominant Species: Red Maples, Sweet Gum

Approximate % shading by woody species: 35%

Steepness of adjacent slopes: Right bank 1% and Left bank 16%

Notes: R4SBr, Flags W68PG-1B thru 6B and 1A thru 6A
Photos 1797 - 1799

Waters of the U.S. Data Sheet

Project: 495/270 MLS			**Feature ID:** 10JJ	**Stream Order:**	
Date: 12/4/19	**State:** MD		**Photos:** 3840-3855		
Crew: MRS/SJF	**County:** Prince George's		**Last Flag Number:** 10JJ-117		

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	X RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: deeply incised channel with some flowing water but not a lot → likely dry in summer			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: none	Downstream: feature enters 3' inlet pipe	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3'-8'		✓ Silts	✓ Sands	Muck		RB: forest
Artificial (man-made)	Depth: 0.1'-0.3'		Cobbles	✓ Gravel	Other:		
✓ Manipulated (man-altered)	Bank Erosion/stability: very eroded and incised		Bedrock	Concrete			LB: forest
Other:			Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1				
Notes: feature originates as roadside ditch then moves off roadside = natural channel							

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2019													
✓ No rain	✓ 0-0.5											X			
Light rain	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
Heavy Rain	>1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	Vegetation matted down, bent, or absent	Destruction of terrestrial veg.	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:
Notes:		

Final

Verified MRS/RL 5/15/2018

495/270 managed Lane study

Stream Features
Field Sheet

5/15/18

Date: ~~7/22/04~~ ~~Project Site: Capital Beltway~~ Wetland # : ~~17~~ ~~W17PG~~ 10K

Observer(s): ~~BJG, KCG~~ MRS/RL

~~KSH 11/21/15~~

Stream Flow:

Perennial: _____ Intermittent √ Ephemeral _____

Gradient: 1%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width ~~2'~~ 2'-4' Depth ~~1'~~ 1'-2" Avg. Water Depth <1"

Has stream morphometry been altered? yes Describe type and degree:
channelized; begins as headcut, drains to culvert under 495

Habitat and Pollutants:

Substrate (predominant type (s)): gravel, sand & silt

Habitat Complexity (Characterize) very low due to low flows

Bank Erosion: Severe √ Moderate √ Minor _____

Describe: channelized, exposed banks

Silt Deposition: minor

Pollutants (observation / potential sources): none

Stormwater Outfalls: 0

Riparian Zone:

Development: none

Riparian vegetation: Forest √ Shrubs _____ Herbs _____

Dominant Species: Black locust, Sweet gum

Approximate % shading by woody species: 95%

Steepness of adjacent slopes: 2%

Notes: R4SB1, W17PG 1A thru 6A and W17PG-1B thru 5B
Photos 1803-1806

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 10KK	**Stream Order:** 1st
Date: 11/12/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: RS, SH	**County:** Prince George's	**Last Flag Number:** 10KK(1-5A)(1-5B)	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year) EXCLDB3II	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at the time of visit with an average depth of 1.5"			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study area	Downstream: 10MM	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6"	☑ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes: Roadside ditch					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: November	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	○	◉
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☑ 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:
Notes:		

VERIFIED 5/24/18 MRS

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM - PG County~~ I-495/I-270 managed Lane study		**Feature ID:** ~~08-G~~ 10L	**Stream Order:**
Date: ~~4/29/15~~ 5/24/18	**State:** MD	**Photos:** ~~4~~ 1684-1686, 1691, 1692	
Crew: ~~KJH, KH~~ MRS/AGA	**County:** Prince George's	**Last Flag Number:** ~~08-G-4A&B~~ 10L-18	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intercepts groundwater			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Culvert draining ~~grass swale~~ 10M	Downstream: Outside study area	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-10'	✓ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 10"	☐ Cobbles	☐ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately unstable	Side slope: ☑ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes: Deeply incised channel					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ May Year: ~~2015~~ 2018													
◉ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 1210/495 Managed Lane Study		**Feature ID:** 10LL	**Stream Order:** 1
Date: 11/17/18	**State:** MD	**Photos:** Upstream Downstream	
Crew: SH TES	**County:** Prince George's	**Last Flag Number:** 10LL (1-14a/b)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit with average depth of 3".

Hydrologic Connectivity –	Upstream: 10LL	Downstream: 10HH	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 5'	✓ Silts	✓ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 2.5'	✓ Cobbles	✓ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete			LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: November Year: 2018												
⊘ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊘	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊘ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified 5/24/18 MRS

I-95/270 managed Lane Study

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region 5/24/18

Project/Site: ~~I-495 IRVM- PG County~~ City/County: Prince George's Sampling Date: ~~4/29/15~~ 10M

Applicant/Owner: SHA State: MD Sampling Point: ~~OS-H-WET~~

Investigator(s): ~~KJH, KH~~ MRS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 149A Lat: 38.994908 Long: -76.887953 Datum: WGS84

Soil Map Unit Name: Russett- Christiana-Urban land complex NWI classification: ~~PEM~~ PFO

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

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

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

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

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

Remarks:

~~PEM~~ wetland located outside ROW fence * Drains into 10L

PFO → trees growing/rooted around perimeter at wetland elevation

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 4
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

1689-1690 → 5/24/18

feature classified as PFO in GIS and very data includes trees → trees rooted around perimeter at elevation at wetland bottom

Photos 1687-1690

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

Sampling Point: DM ~~06-H-WET~~

Tree Stratum (Plot size: 10'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	80	Y	FAC
2. Acer rubrum	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Sapling/Shrub Stratum (Plot size: 10'x20')			
1. Liquidambar styraciflua	40	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5'x10')			
1. Typha latifolia	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size: 10'x20')			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

10M

SOIL

Sampling Point: ~~DP-H-2~~ WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	70	7.5YR 5/3	30	C	M	loam	
4-12	7.5YR 3/2	90	7.5YR 4/4	10	C	M	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

~~could not get soil pit - wetland on other side of ROW fence.~~

Soils collected when site verified.

Wetland Function-Value Evaluation Form

Final

Total area of wetland <1/4 Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forested Distance to nearest roadway or other development >100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10M

Latitude 38.994908 Longitude -76.887953

Prepared by: MRS Date

Wetland Impact:
Type PFO Area ≈ 0.1 Ac

Evaluation based on:
Office Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 10MM	**Stream Order:** 2nd
Date: 11/12/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: RS, SH	**County:** Prince George's	**Last Flag Number:** 10MM(1-14A)(1-14B)	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year) R4SB	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of visit with an average depth of 2"			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Outside study area	Downstream: 10PP	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 5'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 2"	☑ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Flows under MD 295					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: November	Year: 2018
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	●	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☑ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet verified 5/24/18 MRS

Project: ~~I-495 IRVM - PG County~~ 495/270 Managed Lane Study		**Feature ID:** ~~08-I~~ 10N	**Stream Order:**
Date: ~~4/29/15~~ 5/24/18	**State:** MD	**Photos:** ~~7~~ 1693-1697	
Crew: ~~KJH, KH~~ MRS/AGA	**County:** Prince George's	**Last Flag Number:** ~~08-I-3A&B~~ 10N-7	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intercepts ground water			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study area / 10L	Downstream: ~~Culvert to W66PG~~ Outside study area	Adjacent/Abutting: ~~None~~ 10L

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: ~~3-20'~~ 6-10'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3-10"	☐ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		LB: Forest
☐ Other:	Moderately unstable	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: channel deeply incised					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: ~~March~~ May Year: ~~2015~~ 2018													
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I 270/495 Managed Lane Study City/County: Prince George's Sampling Date: 11/12/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 10NN-WET

Investigator(s): SH RS Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.9967095 Long: -76.8758049 Datum: NAD83

Soil Map Unit Name: Russett-Christiana complex (RuB), Udorthents (UdaF) NWI classification: PFO1A

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

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

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

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

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

Remarks: Abutting 10PP.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0.5"

Water Table Present? Yes ✓ No ____ Depth (inches): 0"

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Flags: 10NN (1-11)

Receives hydrology from adjacent uplands and roadway.

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

Sampling Point: IONN-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	15	Y	FAC
2. Nyssa sylvatica	5	Y	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: 10 20% of total cover: 4

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

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

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

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

Herb Stratum (Plot size: 30 ft)			
1. Leersia oryzoides	40	Y	FACW
2. Polygonum pensylvanicum	20	Y	NT
3. Viburnum dentatum	10	N	FAC
4. Ranunculus sceleratus	10	N	OBL
5. Lonicera japonica	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		

50% of total cover: 42.5 20% of total cover: 17

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

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

SOIL

Sampling Point: 10W-WET

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	95	10YR 2/2	5	D	M	Silty Clay	Saturated
8-20	10YR 5/6	85	10YR 4/2	15	D	M	Clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.16 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 30'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10NN

Latitude 38.9967095 Longitude -76.8758049

Prepared by: SH Date 11/16/18

Wetland Impact:
Type N/A Area N/A

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	No			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 100	**Stream Order:**
Date: 5/24/2018	**State:** MD	**Photos:** 1698 - 1699	
Crew: MRS + AGA	**County:** Prince Georges	**Last Flag Number:** 100-5 (center line)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands RG
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Collects drainage from embankment on both sides, head cut at confluence w/ 10F			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream:	Downstream:	Adjacent/Abutting:
	none	10F, 10P	none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2-4'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 0-0.1'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	unstable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			
Notes: water observed, no flow					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php							Month: May		Year: 2018			
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	◉	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified MRS 5/24/18

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

5/24/18

Project/Site: 495/270 Managed Lanes Study I-495 I-270 - PG Co City/County: PG Sampling Date: 4/30/18 10P

Applicant/Owner: SHA State: MD Sampling Point: ~~DB-M-WET~~

Investigator(s): ~~KSH/ET~~ MRS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 15

Subregion (LRR or MLRA): MLRA 149A Lat: 38.990027 Long: -76.888065 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PFO1B

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

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

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

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

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

Remarks: Hillside seep wetland. Drains to waters ~~DB-L~~ 10F

Photos 1700, 1703

HYDROLOGY

Wetland Hydrology Indicators:

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

- [✓] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [✓] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1"
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

10P

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: ~~PF-M~~

Tree Stratum (Plot size: 5'x10')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 5'x10')			
1. Liquidambar styraciflua	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 5'x10')			
1. Omalea semibilis	20	Y	FACW
2. Osmundastrum cinnamomeum	10	Y	FACW
3. Smilax rotundifolia	3	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	33 = Total Cover		
50% of total cover: 16.5	20% of total cover: 6.6		
Woody Vine Stratum (Plot size: 5'x10')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

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

PFO wetland. Sweetgum is outside of plot, but shades wetland

SOIL

Sampling Point: 10P

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Silt loam	
2-12	10YR 6/1	80	2.5YR 6/8	20	C	M/PL	Sandy loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland <¼Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Forest Distance to nearest roadway or other development ~50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10P

Latitude 38.990027 Longitude -76.888065

Prepared by: MRS Date 5/29/15

Wetland Impact:
Type PFO Area <0.1Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 10PP	**Stream Order:** 2nd
Date: 11/12/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: RS, SH	**County:** Prince George's	**Last Flag Number:** 10PP(1-3A)(1-2B)	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year) R4SB	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at the time of visit with an average depth of 2"			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 10NN, 10MM	Downstream: Outside of study area	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4'	☐ Silts	✓ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1.5'	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Scrub-shrub
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Drains impounded wetland 10NN, culverted under MD 295 with rip rap in channel on North side of MD 295					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: November	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	◉	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 managed Lanes Study		**Feature ID:** 100	**Stream Order:** 1
Date: 5/29/19	**State:** MD	**Photos:** 2790, 2791	
Crew: MRS/SJF	**County:** Prince George's	**Last Flag Number:** unflagged (100-5)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: standing water in channel but just rained 2+" in the ~~last week~~ last 2 weeks			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: roadway runoff	Downstream: 11E	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1-3'	☒ Silts	☐ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 0-3"	☐ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			
☐ Other:	stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1				LB: Forested
Notes:						

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php									Month: May		Year: 2018		
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	○
○	Light rain	◉	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-270/495 Managed Lane study		**Feature ID:** 1006	**Stream Order:** II
Date: 4/13/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: SH RS	**County:** Prince Georges	**Last Flag Number:** 1006 (1-14a/b)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊘ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit with average depth of 8".

Hydrologic Connectivity –	Upstream: 1022, 1055	Downstream: 1011	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 6'	☑ Silts	☑ Sands	☐ Muck	RB: forested
☐ Artificial (man-made)	Depth: 2'	☑ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☐ Concrete		LB: forested
☐ Other:		Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.php) Month: November Year: 2018												
⊘ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊘	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊘ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified 5/29/18 MRS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

5/29/18

Project/Site: CMS/270 Managed Lane Study I-495 I-270 MD - PG Co City/County: PG Sampling Date: 5/6/15 10R

Applicant/Owner: SHA State: MD Sampling Point: ~~09-PEM/FET~~

Investigator(s): ~~CJH/ET~~ MRS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): Toe of slope Local relief (concave, convex, none): concave Slope (%): 3%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.003251 Long: -76.893621 Datum: NAD83

Soil Map Unit Name: Udorthents NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

PFO wetland at toe of roadway embankment drains to waters ~~of PG~~. 10S

Photo ~~#47~~ 2792-2793

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 0.25"
Water Table Present?	Yes ✓	No ____	Depth (inches): 1"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

10R

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: ~~29 E EVST~~

Tree Stratum (Plot size: 10'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2. Liriodendron tulipifera	25	Y	FACU
3. Liquidambar styraciflua	5	N	FAC
4.			
5.			
6.			
	70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Sapling Stratum (Plot size: 10'x20')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 10'x20')			
1. Nyssa sylvatica	30	Y	FAC
2. Malus baccata	15	Y	UPL
3.			
4.			
5.			
6.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9

Herb Stratum (Plot size: 10' R)			
1. Toxicodendron radicans	5	Y	FAC
2. Smilax rotundifolia	2	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1.0

Woody Vine Stratum (Plot size: 10'x20')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (If observed, list morphological adaptations below).

10R

SOIL

Sampling Point: ~~DP-C WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/3	100					Sandy loam	
5-13	10YR 4/2	80	2.5YR 5/6	20	C	PL	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland <1/4 Ac Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest + roadway Distance to nearest roadway or other development ~50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10R

Latitude 39.083251 Longitude -76.893601

Prepared by: MMS Date 5/29/18

Wetland Impact:
Type PFO Area

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I 270/495 Managed Lane study		**Feature ID:** 10BR	**Stream Order:** I
Date: 10/13/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: SH KS	**County:** Prince George's	**Last Flag Number:** 10RR (1-3a/b)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		⊗ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing at time of visit with average depth of 1". Substrate mostly leaf litter.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 1000	Downstream: Out of study area	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 5'	☐ Cobbles	☐ Gravel	☑ Other: leaf litter	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Moderate stability	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: November Year: 2018												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊗	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊗ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified 5/29/15 MRS

Stream Features
Field Sheet

5/29/15 495/270 Managed Lane Study 105

Date: ~~7/29/04~~ Project Site: ~~Capital Beltway~~ Wetland #: ~~W19~~ ~~W19PG~~

Observer(s): ~~BJG, KCG, BMS~~ MRS/SJF KJH - 5/6/15

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____ Deeply incised

Gradient: 1%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 3' Depth 4.5' Avg. Water Depth 1"

Has stream morphometry been altered? yes Describe type and degree:
channelized along beltway, concrete lined ramp

Habitat and Pollutants:

Substrate (predominant type (s)): sand

Habitat Complexity (Characterize) low - shallow flows and lack of riffle/ pool sequence

Bank Erosion: Severe _____ Moderate √ Minor _____

Describe: vertical banks and incised channel

Silt Deposition: moderate

Pollutants (observation / potential sources): iron flocculation

Stormwater Outfalls: 3

Riparian Zone:

Development: Inside of on ramp for Rt. 495 and 201

Riparian vegetation: Forest √ Shrubs _____ Herbs _____

Dominant Species: Gum, Red maple,

Approximate % shading by woody species: 90%

Steepness of adjacent slopes: 20-25%

Notes: R2UB2, W19PG-1A thru 21A and W19PG-1B thru 13B (no NEW flags)
Photos 2794 - 2798

Waters of the U.S. Data Sheet

Project: I 270/I 95 Managed Lane Study		**Feature ID:** 1055	**Stream Order:** 1
Date: 11/13/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: SH RS	**County:** Prince George's	**Last Flag Number:** 1055 (1-2 a/b)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit with average depth of 3". Severely incised banks.

Hydrologic Connectivity –	Upstream: Out of study area	Downstream: 1000	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 7'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6'	☑ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Unstable	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: November Year: 2018												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊗	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊗ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Verified MRS 5/29/18

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

5/29/18

I-495 & I-270 Managed Lanes Study

Project/Site: ~~I-495 JRVM - PG County~~ City/County: Prince George's Sampling Date: ~~5/22/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~09-P-WET~~ 10T

Investigator(s): ~~KSH/RDS~~ MRS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): concave Local relief (concave, convex, none): convex Slope (%): 0-2

Subregion (LRR or MLRA): MLRA 149A Lat: 39.001980 Long: -76.895130 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Seep wetland on top of forested hillside.

Photos 2801-2802; Drains to waters IOU

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ✓ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 1"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: ~~39~~ 101

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50%	Y	FAC
2. Quercus palustris	10%	N	FACW
3.			
4.			
5.			
6.			
	90	= Total Cover	

50% of total cover: 45 20% of total cover: 18

Sapling Stratum (Plot size: 10')			
1. Nyssa sylvatica	80%	Y	FAC
2.			
3.			
4.			
5.			
6.			
	80	= Total Cover	

50% of total cover: 40 20% of total cover: 16

Shrub Stratum (Plot size: 10')			
1. Liquidambar styraciflua	5%	Y	FAC
2. Acer rubrum	5%	Y	FAC
3.			
4.			
5.			
6.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 10')			
1. Woodwardia areolata	60%	Y	OBL
2. Phragmites australis	5%	N	FACW
3. Parthenocissus quinquefolia	15%	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80	= Total Cover	

50% of total cover: 40 20% of total cover: 16

Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 10T ~~SQ-R-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7"	5Y4/2	70%	7.5YR5/6	30%	C	M, PL	Sandy Loam	
7-12"	10YR4/6	100%					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Thin muck surface present at top of soil horizon

Wetland Function-Value Evaluation Form

Final

Total area of wetland <1/4 AC Human made? No Is wetland part of a wildlife corridor? N or a "habitat island"? Yes

Adjacent land use Forested Distance to nearest roadway or other development 40-60'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10T

Latitude 39.101980 Longitude -76.895130

Prepared by: MRS Date 5/25/11

Wetland Impact:
Type PFO Area <0.25Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified 11/20/2018
SH RS

10TT

Stream Datasheet

Project: I-495/ I-270 Managed Lane Study
Date: 12/18/17
Stream ID: 10TT
Investigators: WT, BM
Stream Name: Unnamed tributary to Brier Ditch

Use (I-IV): I
Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW
Flow: ☒ Perennial R5 ☐ Intermittent ☐ Ephemeral
If ephemeral, provide justification for flagging:

Direction of flow: West
Gradient (%): 0-2
Connection to TNW: 10TT is an unnamed tributary to Brier Ditch, which flows into Brier Ditch, which flows into the Northeast Branch of the Anacostia River, a TNW.

Avg. Width (Top of Bank): 15'
Avg. Depth (Top of Bank): 3'
Avg. Water Depth: 6"
Avg. Slope of Banks (°): LB 45 RB 45
Has stream been altered? If so, how: Culverted at upstream and downstream extents.

Common Substrate:
☐ Bedrock ☐ Cobble/Gravel ☐ Concrete ☒ Sand ☒ Silt
☐ Other:

Habitat Complexity:
☒ Riffles/pools ☒ Undercut Banks ☐ Tree Roots ☒ Woody Debris
Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor
Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor
Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:
RB: ☒ Forested ☒ Shrub ☒ Herb. ☒ Wetlands ☐ Developed ☐ Maintained
LB: ☒ Forested ☒ Shrub ☒ Herb. ☒ Wetlands ☐ Developed ☐ Maintained

Flags:
10TT(1-9)
Additional Notes:

Take upstream and downstream photos.

495/290 managed Lane Study

Waters of the U.S. Data Sheet

Verified 5/25/18 MPS

Project: I-495 IRVM – PG County		**Feature ID:** 09-S 104	**Stream Order:**
Date: 5/22/15 5/29/18	**State:** MD	**Photos:** 9 2803-2804	
Crew: KJH,RDS MPS/SJP	**County:** Prince George's	**Last Flag Number:** 09-S-3B not flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intercepts ground water, several seeps; flocculated iron			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 09-R 10T	Downstream: 09-B 10AA	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-5'	☑ Silts	☐ Sands	☑ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 5"	☑ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: ~~April~~ May	Year: ~~2015~~ 2018
◉ No rain	○ 0-0.5			
○ Light rain	◉ 0.5-1	-6 -5 -4 | -3 -2 | -1 0 1 | 2 3 | 4 5 6		
○ Heavy Rain	⊗ >1	Severe Drought | Moderate Drought | Normal | 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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified 11/20/2018
SH RS

10UU

Stream Datasheet

Project: I-495/I-270 Managed Lane Study
Date: 12/11/17
Stream ID: 10UU
Investigators: WT, RS
Stream Name: Unnamed tributary to Brier Ditch

Use (I-IV): I
Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW
Flow: ☐ Perennial ☒ Intermittent ☐ Ephemeral
If ephemeral, provide justification for flagging:

Direction of flow: Northwest
Gradient (%): 2-5
Connection to TNW: 10UU flows into 10TT, which is an unnamed tributary to Brier Ditch, which flows into the Northeast Branch of the Anacostia River, a tributary to the Anacostia River, a TNW.

Avg. Width (Top of Bank): 3'
Avg. Depth (Top of Bank): 1'
Avg. Water Depth: 2"
Avg. Slope of Banks (°): LB 20 RB 20
Has stream been altered? If so, how:

Common Substrate:
☐ Bedrock ☐ Cobble/Gravel ☐ Concrete ☒ Sand ☒ Silt
☐ Other:

Habitat Complexity:
☒ Riffles/pools ☐ Undercut Banks ☐ Tree Roots ☐ Woody Debris
Bank Erosion: ☐ Severe ☐ Moderate ☐ Minor
Silt Deposition: ☐ Severe ☐ Moderate ☐ Minor
Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:

RB:	☐ Forested	☒ Shrub	☒ Herb.	☒ Wetlands	☐ Developed	☐ Maintained
LB:	☒ Forested	☒ Shrub	☒ Herb.	☒ Wetlands	☐ Developed	☐ Maintained

Flags:
10UU(1-21)
Additional Notes:

Take upstream and downstream photos.

Verified 5/29/18 MRS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

5/29/18

Project/Site: ~~I-495/270 Managed Lanes Study~~ I-495 I-270 MD - VA Corridor City/County: Prince George's Sampling Date: ~~5/22/18~~ 5/29/18

Applicant/Owner: SHA State: MD Sampling Point: ~~DP WET~~ 10V

Investigator(s): ~~KJH/RDS~~ MRS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR or MLRA): MLRA 148A Lat: 39.000345 Long: -76.893535 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Photos 2805-2806 (5/29/18)

Drains to NE under highway to 10BB

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface Water Outside Plot

10V

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~09 Rtd~~ T

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 10')			
1. Juncus effusus	20	Y	OBL
2. Typha latifolia	10	N	OBL
3. Juncus tenuis	5	N	FAC
4. Persicaria hydropiper	40	Y	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: 37.5 20% of total cover: 15			
Woody Vine Stratum (Plot size: 10')			
1. Ampelopsis brevipedunculata	30	Y	UPL
2.			
3.			
4.			
5.			
30 = Total Cover			
50% of total cover: 15 20% of total cover: 6			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

10V

SOIL

Sampling Point: ~~DP-1-ET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	95%	7.5YR 4/6	5%	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rip Rap

Depth (inches): 5"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.06AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use roadway Distance to nearest roadway or other development 20 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 1DV

Latitude 39.660395 Longitude -76.893535

Prepared by: MRS Date 5/29/15

Wetland Impact:
Type PEM Area ~0.06AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				minor filtering of roadway runoff
Nutrient Removal	✓				"
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Verified 11/20/18
RS SH

10VV-WET

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's County Sampling Date: 12/11/17

Applicant/Owner: Washington Suburban Sanitary Commission State: MD Sampling Point: 10VV -WET

Investigator(s): WT, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.981767 Long: -76.890053 Datum: NAD83

Soil Map Unit Name: Zekiah and Issue soils (ZS), frequently flooded NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	

Remarks:

10VV PEM abutting 10WW, 10QQ, and 10TT

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ✓	No ___	Depth (inches): -6"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): -6"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

10VV receives hydrology from runoff from adjacent uplands.

Flags: 10VV (1-20)

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 10VV -WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1. *Liquidambar styraciflua*	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30 ft)			
1. *Typha latifolia*	30	yes	OBL
2. *Phalaris arundinacea*	25	yes	OBL
3. *Microstegium vimineum*	20	yes	FAC
4. *Juncus effusus*	5	no	FACW
5. *Dichanthelium clandestinum*	5	no	FACW
6. *Lycopus virginicus*	5	no	OBL
7. *Osmandastrum cinnamomeum*	5	no	FACW
8. *Acorus calamus*	5	no	OBL
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 10VV -WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	95	10YR 4/6	5	C	M	Silty clay	
6-10	10YR 4/2	80	10YR 4/4	20	C	M	Silty clay	Saturated
10-20	10YR 4/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.067 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 65 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Nibble

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10W

Latitude 38.981767 Longitude -76.890053

Prepared by: SH Date 11/21/18

Wetland Impact: Type N/A Area N/A

Evaluation based on: Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Verified 5/29/18 MW

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

5/29/18

Project/Site: ~~I-495/270 P3 Express Lanes Study~~ 495/270 Managed Lane Study City/County: Prince George's Sampling Date: ~~5/22/18~~ 5/29/18

Applicant/Owner: SHA State: MD Sampling Point: ~~DP-2-WET~~ 10W

Investigator(s): ~~KSH/RDS~~ MRS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): MLRA 149A Lat: 39.000517 Long: 76.894988 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Photos 2807-2809 roadside ditch wetland

Appears to receive GW seepage from hillside

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

10W

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~DA QUAD~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5x10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 5x10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 5x10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 5'x10')			
1. Juncus effusus	10	Y	OBL
2. Carex lurida	40	Y	OBL
3. Typha latifolia	5	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5 20% of total cover: 11			
Woody Vine Stratum (Plot size: 5x10')			
1. Ampelopsis brevipedunculata	2	N	UPL
2.			
3.			
4.			
5.			
	2 = Total Cover		
50% of total cover: 1 20% of total cover: 0.4			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

10W

SOIL

Sampling Point: ~~DP-2-10ST~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR3/1	90	7.5YR4/6	10	C	M	Silt Loam	
6-12"	2.5Y4/1	90	7.5YR5/8	10	C	PL	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03AC Human made?_____ Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use roadway Distance to nearest roadway or other development 10 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?_____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 1DW

Latitude_____ Longitude_____

Prepared by: MMS Date 5/29/18

Wetland Impact:
Type PEM Area ~0.03AC

Evaluation based on: ✓
Office_____ Field_____

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				evidence of GW discharge into swale
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				minor filtering of stormwater runoff and GW
Nutrient Removal	✓				"
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified 11/20/18
RS SH

10WW-WET

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's County Sampling Date: 12/11/17

Applicant/Owner: Washington Suburban Sanitary Sewer Commission State: MD Sampling Point: 10WW -WET

Investigator(s): WT, RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.981744 Long: -76.891731 Datum: NAD83

Soil Map Unit Name: Zekiah and Issue soils (ZS), frequently flooded NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation ___ ___, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	Is the Sampled Area within a Wetland? Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.5"
Water Table Present?	Yes ✓	No _____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

10WW receives hydrology from a spring seep and runoff from adjacent uplands.

Flags: 10WW (1-22)

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 10WW -WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Nyssa sylvatica*	40	yes	FAC
2. *Acer rubrum*	30	yes	FAC
3.			
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot size: 30 ft)			
1. *Nyssa sylvatica*	20	yes	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 30 ft)			
1. *Nyssa sylvatica*	20	yes	FAC
2. *Ilex opaca*	10	yes	FAC
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 30 ft)			
1. *Symplocarpus foetidus*	40	yes	OBL
2. *Osmundastrum cinnamomeum*	30	yes	FACW
3. *Microstegium vimineum*	20	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

Buttressed tree roots observed throughout wetland.

SOIL

Sampling Point: 10WW-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Muck	
8-20	10YR 3/2	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.307 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PFO/PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10WW

Latitude 38.981744 Longitude -76.891731

Prepared by: SH Date 11/21/18

Wetland Impact:
Type N/A Area N/A

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495 / I-270 managed Lanes Study		**Feature ID:** 10X	**Stream Order:** 1
Date: 5/29/18	**State:** MD	**Photos:** 2810 - 2813	
Crew: MRS / SJF	**County:** Prince George's	**Last Flag Number:** unflagged (10X -7)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: some standing water during field visit, but received 2" rain in last ~~week~~ 2 weeks			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: unknown	Downstream: unknown	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4-6'	☒ Silts	☒ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 0-6"	☒ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: moderately stable	☐ Bedrock	☐ Concrete			LB: Forested
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1				
Notes: upper reach is stable, lower reach has some shelving + exposed roots						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018
⊗ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought	
○ Light rain	◉ 0.5-1	○ -3 ○ -2	Moderate Drought	
○ Heavy Rain	○ >1	○ -1 ◉ 0 ○ 1	Normal	
		○ 2 ○ 3	Moderately Wet	
		○ 4 ○ 5 ○ 6	Severely Wet	

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified 11/20/2018
RS SH

10XX-WET

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's County Sampling Date: 12/18/17

Applicant/Owner: Washington Suburban Sanitary Sewer Commission State: MD Sampling Point: 10XX -WET

Investigator(s): WT, BM Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.9828508 Long: -76.815143 Datum: NAD83

Soil Map Unit Name: Zekiah and Issue soils, frequently flooded (ZS) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

PFO located east of Park Central Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): -6
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): -6

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area receives sheetflow runoff from adjacent wooded uplands and from periodic flooding of ~~WL005L~~.

10TT

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 10XX-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	yes	FAC
2. *Liquidambar styraciflua*	25	yes	FAC
3. *Nyssa sylvatica*	20	yes	FACU
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 17		
Sapling Stratum (Plot size: 30 ft)			
1. *Acer rubrum*	30	yes	FAC
2. *Nyssa sylvatica*	20	yes	FAC
3. *Liquidambar styraciflua*	20	yes	FAC
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Shrub Stratum (Plot size: 30 ft)			
1. *Carpinus caroliniana*	10	yes	FAC
2. *Lindera benzoin*	10	yes	FACW
3. *Vaccinium corymbosum*	5	yes	FACW
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 13	20% of total cover: 5		
Herb Stratum (Plot size: 30 ft)			
1. *Microstegium vimineum*	40	yes	FAC
2. *Smilax rotundofolia*	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 23	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 10 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

Buttressed tree roots observed.

SOIL

Sampling Point: 10XX-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	10YR 4/6	5	C	M	Silt loam	
6-14	10YR 4/2	80	7.5RY 5/6	20	C	M	Silt loam	Saturated
14-20	10YR 5/2	100					Silt loam	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.349 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development

Dominant wetland systems present Contiguous undeveloped buffer zone present

Is the wetland a separate hydraulic system? If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10XX

Latitude 38.982858 Longitude -76.815143

Prepared by: SH Date 11/21/18

Wetland Impact:
Type N/A Area N/A

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 managed Lanes Study		**Feature ID:** 10Y	**Stream Order:** 1
Date: 5/29/18	**State:** MD	**Photos:** 2914, 2915	
Crew: MRS/SJF	**County:** Prince George's	**Last Flag Number:** unflagged (10Y-6)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
◯ TNW (Subject to ebb and flow)	◯ TNW – Perennial (Flowing year round)	◯ RPW – Seasonal (must flow at least 3 months a year)	◯ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		◯ Non-RPW erosional feature
			◯ Non-RPW with abutting wetland
			◯ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during field visit			◯ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: none	Downstream: Piped under highway to 10BB	Adjacent/Abutting: 10Z

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☒ Silts	☒ Sands	☐ Muck		RB: Forested
☒ Artificial (man-made)	Depth: 0-6"	☒ Cobbles	☐ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete			
☐ Other:	stable	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				LB: Forested
Notes:						

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: May	Year: 2018
⊗	No rain	◯	0-0.5	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
◯	Light rain	◉	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
◯	Heavy Rain	◯	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: 495/270 MAN LANES STUDY		Feature ID: 10Y	Stream Order:
Date: 10/12/18	State: MD	Photos: 4330 - 4334	
Crew: MRS, EYG	County: Prince George's	Last Flag Number:	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOW OBSERVED - abundant			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SW pipe outfall	Downstream: NE	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MHSS)
☐ Natural Channel Shape	Width: 2-4'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☒ Artificial (man-made)	Depth: 2-15"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: MOD. STABLE	☐ Bedrock	☒ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: CONCRETE LINED CHANNEL, INCISED DOWNSTREAM					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: AUG Year: 2018													
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○	○
○	Light rain	⊗	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lane Study City/County: Prince George's Co Sampling Date: 6/5/18

Applicant/Owner: SHA State: MD Sampling Point: 107-wet

Investigator(s): MRS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 0-5

Subregion (LRR or MLRA): MLRA Lat: 38.999781 Long: -76.893420 Datum: NAD83

Soil Map Unit Name: Christiana - Downer (Urban) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☑, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

photos 1740 - 1744

★ additional photos taken on 5/29/18 => 2518 - 2524

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 2-6"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 102-Wet

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15' radius)			
1. Acer rubrum	5	N	FAC
2. Liquidambar styraciflua	10	Y	FAC
3. Fagus grandifolia	15	Y	FACU
4. Ilex opaca	10	Y	FAC
5.			
6.			
7.			
8.			
	40	= Total Cover	
50% of total cover: 20		20% of total cover: 8	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Acer rubrum	10	Y	FAC
2. Magnolia virginiana	10	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	
50% of total cover: 10		20% of total cover: 4	
Herb Stratum (Plot size: 15' radius)			
1. Phragmites australis	75	Y	FACW
2. Smilax rotundifolia	5	N	FAC
3. Symplocarpus foetidus	5	N	OBL
4. Impatiens capensis	5	N	FACW
5. Microstegium vimineum	10	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	
50% of total cover: 50		20% of total cover: 20	
Woody Vine Stratum (Plot size: 15' radius)			
1.			
2. None			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0		20% of total cover: 0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 102-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
	unable to collect soil profile - soils too soft and mucky							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

- several inches of standing water in wetland
- soils mucky
- ★ unable to take a profile ⇒ soils to soft and mucky
- wetland appears to be in an old, filled-in stream channel
- soils are problematic, but very wet and organic rich

Wetland Function-Value Evaluation Form

Total area of wetland 0.06AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PFO/PEM Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 102

Latitude 38.999781 Longitude -76.893420

Prepared by: MRS Date 6/5/18

Wetland Impact:
Type PFO Area 0.06 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				visual evidence of GW seepage
Floodflow Alteration		✓			too small to store storm water
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				dense plugs likely captures sediments
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Verified 11/20/18 RS SH

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I270 Managed Lane Study City/County: Prince George's County Sampling Date: 12/11/17
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 10ZZ-WET
Investigator(s): RS SH Section, Township, Range: NA
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 38.981767 Long: -76.890053 Datum: NAD83
Soil Map Unit Name: Zekiah and Issue soils (Zs) NWI classification: PEMIA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
10ZZ abuts loTT.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____
Water Table Present? Yes ✓ No ____ Depth (inches): 6"
Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 6"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
10ZZ receives hydrology from runoff adjacent uplands

Photos:
10ZZ-WET_North
10ZZ-WET_East

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 10ZZ-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	____ = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 30 ft)			
1. Typha latifolia	30	Yes	OBL
2. Phalaris arundinacea	25	Yes	OBL
3. Microstegium vimineum	20	Yes	FAC
4. Juncus effusus	5	No	FACW
5. Dichanthelium clandestinum	5	No	FACW
6. Lycopus virginicus	5	No	OBL
7. Osmundastrum cinnamomeum	5	No	FACW
8. Acorus calamus	5	No	OBL
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 10ZZ-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	95	10YR 4/6	5	C	M	Silty Clay	
6-10	10YR 4/2	80	10YR 4/4	20	C	M	Silty Clay	Saturated
10-20	10YR 4/1	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.3 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Stream and PFO wetland Distance to nearest roadway or other development 89 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 10ZZ

Latitude 38.982145 Longitude -76.891716

Prepared by: RS Date 1/30/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	Y			
Sediment/Shoreline Stabilization	Y			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM – PG County~~ 495/270 Managed Lane Study		**Feature ID:** ~~09-F~~ 11 A	**Stream Order:**
Date: ~~5/8/15~~ 6/5/18	**State:** MD	**Photos:** ~~8~~ 1746-1749, 1752, 1757	
Crew: ~~KdH, KH~~ MRS/AGB	**County:** Prince George's	**Last Flag Number:** ~~6B~~ N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intercepts flowing groundwater 11A designated perennial below junction with 11B			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: ~~Ephemeral ditch~~ roadway, culvert → 11B (perennial only)	Downstream: Culvert to outside SA under road	Adjacent/Abutting: ~~W2OPG~~ 11C, 11B * converges w/ 11C @ culvert

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate						Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-5'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☑ 3:1 ☑ ≤4:1			
Notes: man-made roadside ditch, sections of channel armored with concrete					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: ~~April~~ May	Year: ~~2015~~ 2018
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495/270 MAN. LANES STUDY		Feature ID: IIAA	Stream Order:
Date: 10/16/18	State: MD	Photos: 4374 - 4377, 4386	
Crew: MRS, EVG	County: Prince George's	Last Flag Number: IIAA - 3AB	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
◯ TNW (Subject to ebb and flow)	◯ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	◯ Non-RPW draining uplands
	◯ RPW – Perennial (Flowing year round)		◯ Non-RPW erosional feature
			◯ Non-RPW with abutting wetland
			◯ Non-RPW with adjacent wetland
			◯ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: FLOWING OBS DURING OBS.

Hydrologic Connectivity –	Upstream: IIAA	Downstream: INDIAN CREEK (IIL)	Adjacent/Abutting: IICC, IIDD, IIEE

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (NHSSS)
☒ Natural Channel Shape	Width: 2 - 3'	☐ Silts	☐ Sands	☒ Muck		RB: FOREST
☐ Artificial (man-made)	Depth: 2 - 8"	☒ Cobbles	☐ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: HEDGEROW
☐ Other:	ERODED	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1				

Notes: MORE EROSION DOWNSTREAM

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php									Month: September		Year: 2018		
⊗	No rain	◯	0-0.5	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◉	◯	◯
◯	Light rain	◉	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
◯	Heavy Rain	◯	>1	Severe Drought			Moderate Drought		Normal			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							
☒ 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/debris	☒	Observed/predicted flow events		
	☐	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☐	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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 4951270 MLS City/County: PG Sampling Date: 12.06.19
Applicant/Owner: MDOT SHA State: MD Sampling Point: 11B - WET
Investigator(s): MRS; EVG Section, Township, Range:
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): Concave Slope (%): 5-10
Subregion (LRR or MLRA): MLRA 149A Lat: 39.0047 Long: -76.8952 Datum: NAD83
Soil Map Unit Name: Udorthents, highway, 0 to 65% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks: Drains into perennial portion of 11A

Photos 0709-0711

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☑ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 0-2"
Water Table Present? Yes ☒ No ☐ Depth (inches): 1/2"
Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

ABUNDANT GROUND WATER DISCHARGE TO SWALE

11B - WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: _____

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 x 30)			
1. SWEETGUM Liquidambar styraciflua	60	Y	FAC
2. PIN OAK Quercus palustris	20	Y	FACW
3. BRADFORD PEAR Pyrus calleryana	5	N	NI
4.			
5.			
6.			
	085	= Total Cover	
50% of total cover: 0.0 (42)		20% of total cover: 0.0 (17)	
Sapling Stratum (Plot size: 10 x 30)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover: 0.0		20% of total cover: 0.0	
Shrub Stratum (Plot size: 10 x 30)			
1. HONEYSUCKLE Lonicera morrowii	20	Y	FACU
2. AMERICAN HOLLY Ilex opaca	T	N	FACU
3.			
4.			
5.			
6.			
	20 (10)	= Total Cover	(4)
50% of total cover: 0.0		20% of total cover: 0.0	
Herb Stratum (Plot size: 10 x 30)			
1. HONEYSUCKLE Lonicera morrowii	10	Y	FACU
2. JAPANESE HONEYSUCKLE Lonicera japonica	5	N	FACU
3. GREEN BRIER Smilax rotundifolia	10	Y	FAC
4. POISON IVY Toxicodendron radicans	20	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	045 (22.5)	= Total Cover	(9)
50% of total cover: 0.0		20% of total cover: 0.0	
Woody Vine Stratum (Plot size: 10 x 30)			
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0.0		20% of total cover: 0.0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals: (A)		0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND IS A NARROW SWALE VERY LITTLE HERBACEOUS SPECIES

SOIL

Sampling Point: 11 B - WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 4/2	60	10YR 4/6	40	C	M	LOAM	
3-12	7.5YR 4/1	60	5YR 4/4	40	C	M	SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.01Ac Human made? YES Is wetland part of a wildlife corridor? No or a "habitat island"? YES

Adjacent land use Forest / roadway Distance to nearest roadway or other development 60 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11B

Latitude 39.0047 N Longitude -76.8952 W

Prepared by: MMS Date 12/06/18

Wetland Impact: Type PFO Area 0.01Ac

Evaluation based on: Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			✓	
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: 495/270 MAN LANES STUDY		Feature ID: 11BB	Stream Order:
Date: 10/16/18	State: MD	Photos: 4378 - 4382	
Crew: MRS, EVG	County: Prince George's	Last Flag Number:	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOW OBS DURING SURVEY			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: MARSH (11FF)	Downstream: INDIAN CREEK (11L)	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1'	☐ Silts	☒ Sands	☐ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 2 - 8"	☒ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	MOD. STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: FOREST.
Notes: STABLE BY SURROUNDING VEGETATION					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: September	Year: 2018
☒ No rain	○ 0-0.5	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ◉ ○ ○		
○ Light rain	◉ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6		
○ Heavy Rain	○ >1	Severe Drought / Moderate Drought / Normal / 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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes		**Feature ID:** IIC	**Stream Order:**
Date: 6/5/18	**State:** MD	**Photos:** 1758-1761 = IIC1 - C6	
Crew: MRS/AGA	**County:** Prince Georges	**Last Flag Number:** IIC-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing water in feature			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: none	Downstream: none (outside study area)	Adjacent/Abutting: IIA, IID

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-3'	✓ Silts	✓ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 0.5'-0.2'	✓ Cobbles	☐ Gravel	✓ Other: riprap	
✓ Manipulated (man-altered)	Bank Erosion/stability: moderate to stable	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ✓ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018
✓ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4	○ -3 ○ -2	○ -1 ○ 0 ◉ 1	○ 2 ○ 3	○ 4 ○ 5 ○ 6
○ Light rain	○ 0.5-1	Severe Drought	Moderate Drought	Normal	Moderately Wet	Severely Wet
○ Heavy Rain	✗ >1					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ 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/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: 495/270 MAN. LANES STUDY		Feature ID: 11CC	Stream Order:
Date: 10/16/18	State: MD	Photos: 4383 - 4384, 4385	
Crew: MRS, EVG	County: Prince George's	Last Flag Number: 11CC-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: MINIMAL FLOW OBS DURING SURVEY			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 11FF	Downstream: 11AA	Adjacent/Abutting: 11DD

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSSI)
☒ Natural Channel Shape	Width: ~~1-2'~~ 1-2'	☒ Silts	☒ Sands	☒ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 1-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: FOREST
☐ Other:	STABLE	Side slope: ☒ ≥1:1	☒ 2:1	☐ 3:1 ☐ ≤4:1	
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: September Year: 2018												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Final

Waters of the U.S. Data Sheet

Project:	495/270 Managed Lane Study		**Feature ID:**	11D	**Stream Order:**
Date:	6/5/18	**State:** MD	**Photos:**	1764 - 1766	
Crew:	MRS/AGP	**County:** Prince George's	**Last Flag Number:**	11D-4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: ~~[illegible]~~ intermittent - dry or flowing on different site visits

Hydrologic Connectivity –	Upstream:	None (outside study area)	Downstream:	11C	Adjacent/Abutting:	none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	☐ Silts	✓ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 0.0-0.2'	☐ Cobbles	☐ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: forest fringe then mowed roadway ROW
☐ Other:	stable to moderate erosion	Side slope: ✓ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: May	Year: 2018
✓ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	✓ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified on 10/16/18

493/270 Mangal Lane Study MRS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

11 DD

Project/Site: ~~I-495 IRUM~~ PG County City/County: Prince George's Sampling Date: ~~5/29/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~SH-SG-WET~~

Investigator(s): ~~EJH/ROS~~ MRS/EYG Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 4

Subregion (LRR or MLRA): MLRA 149A Lat: 39.011996 Long: -76.903400 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Reed Canary wetland located along stream banks of features 09Y & 09Z.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 11"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 4"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

photos 4387-4389 from 10/16/18

11DD

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~29.66 LT~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
= Total Cover			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 10')			
1. Phalaris arundinacea	90%	Y	OBL
2. Toxicodendron radicans	5%	N	FAC
3. Peltandra virginica	5%	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
= Total Cover			
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

11DD

SOIL

Sampling Point: ~~09-GG-TET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4"	10YR3/2	100					Silt Loam	
4-13"	10YR4/2	80%	7.5YR4/6	20%	C	M, PL	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 DD

Latitude 39.01996 Longitude -76.903400

Prepared by: WMS Date 10/16/15

Wetland Impact:
Type PEM Area 0.01 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export	✓				
Sediment/Shoreline Stabilization	✓				
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/270 managed Lanes Study		**Feature ID:** 11E	**Stream Order:**
Date: 6/6/18 & 6/12/18	**State:** MD	**Photos:** 1775-1786, 351, 353-356	
Crew: MRS + AGA	**County:** Prince Georges	**Last Flag Number:** 11F-379/6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: observed significant flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Greenbelt Lake outside of study area	Downstream: unknown, outside of study area	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 10-20'	✓ Silts	✓ Sands	○ Muck	RB: forest
○ Artificial (man-made)	Depth: 0.2-3.0'	○ Cobbles	✓ Gravel	✓ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	○ Bedrock	✓ Concrete	Riprap	LB: forest
○ Other:	Moderately Stable	Side slope: ✓ ≥1:1 ✓ 2:1 ○ 3:1 ○ ≤4:1			

Notes: Likely relocated for highway construction

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018
⊖ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4	○ -3 ○ -2	○ -1 ○ 0 ◉ 1	○ 2 ○ 3	○ 4 ○ 5 ○ 6
○ Light rain	○ 0.5-1	Severe Drought	Moderate Drought	Normal	Moderately Wet	Severely Wet
○ Heavy Rain	○ >1					

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark			
✓ 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/debris	✓ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	○ Destruction of terrestrial veg.	○ 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:

Notes:

Verified 10/16/18 MRS

495/270 managed Lane Study

10/16/18 11EE

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: ~~I-495 ICM - PG County~~ City/County: Prince George's Sampling Date: ~~5/29/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~09-HH-WET~~

Investigator(s): ~~KJH/EDS~~ MRS/EVG Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): MLRA 149A Lat: 39.012382 Long: -76.903408 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 12"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 6"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photos 4390-4392 from 10/16/18

10/16/18 MRS

11 EE

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~UPLAND~~ WET

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	100%	Y	FAC
2.			
3.			
4.			
5.			
6.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Sapling Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: ____ 20% of total cover: ____

Shrub Stratum (Plot size: 10')			
1. Lindera benzoin	50%	Y	FACW
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25 20% of total cover: 10

Herb Stratum (Plot size: 10')			
1. Symplocarpus foetidus	25%	Y	OBL
2. Smilax rotundifolia	25%	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 10')			
1. Smilax rotundifolia	10%	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

10/16/18
MRS

11EE

SOIL

Sampling Point: ~~09-WH-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR3/2	60%	7.5YR4/6	10%	C	PL, M	Silt loam	
	10YR4/3	30%						
4-12"	10YR3/2	90%	7.5YR4/6	10%	C	PL, M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.06Ac Human made? NO Is wetland part of a wildlife corridor? Yes or a "habitat island"? NO

Adjacent land use Forest Distance to nearest roadway or other development 45 Ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 EE

Latitude 39.012382 Longitude -76.503508

Prepared by: MRS Date 10/16/18

Wetland Impact:
Type PFO Area 0.06Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization	✓				
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Verified 6/6/18 MRS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

6/6/18

Project/Site: ~~I-495 IRVM - PG County~~ 495/270 Managed Lanes Study City/County: Prince George's Sampling Date: 5/18/15 11F.

Applicant/Owner: SHA State: MD Sampling Point: ~~04 E WET~~

Investigator(s): ~~KSH/RDS~~ MRS/AGA Section, Township, Range: _____

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR or MLRA): MLRA 148A Lat: 39.066173 Long: -76.901799 Datum: WGS 84

Soil Map Unit Name: Udorthents NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Phrag wetland in depression at toe of I-495 Embankment

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No ___	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface Water outside plot now

6/6/18 → surface water ~~ends~~ just inside ROW fence

Photos 1794-1797

11F

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DA-L-1-ET

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10')			
1. Phragmites australis	90	Y	FACW
2. Toxicodendron radicans	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: 10')			
1. Ampelopsis brevipendunculata	30	Y	UPL
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: 15 20% of total cover: 6

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	30	x 5 =	150
Column Totals:	125 (A)		345 (B)

Prevalence Index = B/A = 2.76

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (If observed, list morphological adaptations below).

6/6/18 → extended wetland area includes mostly Phrag plus some broadleaf cattail and reed canary grass

11F

SOIL

Sampling Point: 09-E-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR3/2	90	7.5YR4/6	10	C	M/PL	Silt Loam	
5-9	10YR4/4	100					Silt Loam	
9-13	10YR4/2	80	7.5YR5/8	20	C	M	Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.2AC Human made? NO Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Roadway, sportsmans complex Distance to nearest roadway or other development 25 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 F

Latitude 39.009548 Longitude -76.902272

Prepared by: MMS Date 6/6/18

Wetland Impact:
Type PEM Area 0.2AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				feature is low spot holding SW for GW recharge
Floodflow Alteration		✓			feature not associated with a perennial WWS
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				feature receives runoff from highway
Nutrient Removal	✓				feature recieves runoff from highway
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 MAN LANES STUDY City/County: Prince George's Sampling Date: 10/16/18

Applicant/Owner: SHA State: MD Sampling Point: 11FF-WET

Investigator(s): MRS, EVG Section, Township, Range: _____

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR or MLRA): MLRA 149A Lat: 39.012544 Long: -76.903074 Datum: NAD83

Soil Map Unit Name: Udorthents NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:
Dense phragmites marsh w/ red maple on edge and scattered in center
Photos 4395 - 4397

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☒ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0-3"
Water Table Present?	Yes X	No _____	Depth (inches): 4"
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
POINT TAKEN @ EDGE OF WETLAND
MAJORITY IS PHRAGMITES.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UFF-WL1

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. RED MAPLE Acer rubrum	40	Y	FAC
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Sapling/Shrub Stratum (Plot size: 20' radius)			
1. SWEETGUM Liquidambar styraciflua	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 20' radius)			
1.			
2. PHRAGMITES australis	80	Y	FACW
3. CAREX SP.	10	N	NI
4. PORCELAIN BERRY	10	N	UPL
5. Ampelopsis brevipedunculata			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		

Woody Vine Stratum (Plot size: 20' radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UFF-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					ORGANIC MUCK W/ FINE ROOTS	
3-6	10YR 3/1	100					MUCK SILT, LOTS OF ROOTS	
6-12	10YR 3/1	90	10YR 5/1	10	C	M	ORGANIC RICH CLAY, FINE ROOTS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

UNABLE TO COLLECT SOIL BELOW 12" DUE TO SOFT SOIL.

Wetland Function-Value Evaluation Form

Total area of wetland >2.0Ac Human made?_____ Is wetland part of a wildlife corridor? yes or a "habitat island"?_____

Adjacent land use forest, roadway, rail yard Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11FF

Latitude 39.0125559 Longitude -76.903471

Prepared by: MBS Date 10/16/18

Wetland Impact: Type PFO Area >2.0 Ac

Evaluation based on: Office_____ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		3,7,8,9,13	✓	
Floodflow Alteration	✓		1,4,5,6,7,8,9,12,14,13,18	✓	
Fish and Shellfish Habitat		✓	4, 14		
Sediment/Toxicant Retention	✓		1,2,3,4,5,6,7,13,12,14,15	✓	
Nutrient Removal	✓		3,4,5,6,7,8,9,12,14,12,13 14	✓	
Production Export	✓		1,2,4,5,7,8,9,12,14	✓	
Sediment/Shoreline Stabilization		✓	2,3,4,5,7,9,15		
Wildlife Habitat	✓		5,6,7,8,13,14,15,16,19		
Recreation		✓	5,12		
Educational/Scientific Value		✓	5		
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet verified MRS/ET 6/12/18

Project: ~~I-495 IRVM - PG County~~ 495/270 Managed Lanes Study		**Feature ID:** ~~09-L~~ 11G	**Stream Order:**
Date: ~~5/18/15~~ 6/12/18	**State:** MD	**Photos:** ~~3~~ 352, 361-363	
Crew: ~~KJH, RDS~~ MRS/ET	**County:** Prince George's	**Last Flag Number:** 11G-3	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Intercepts ground water → feature extends up concrete channel due to GW seep

Hydrologic Connectivity –	Upstream: Concrete lined channel	Downstream: Culvert draining under 495	Adjacent/Abutting: ~~W21PG~~ 11E

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate						Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-10'	✓ Silts	✓ Sands	✓ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 4" - 15"	☐ Cobbles	☐ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~April~~ June Year: ~~2015~~ 2018												
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	☒ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
☒ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 495/270 MAN LANES STUDY		**Feature ID:** 11GG	**Stream Order:**
Date: 10/23/18	**State:** MD	**Photos:** 293 - 296	
Crew: MRS; EVG	**County:** PG	**Last Flag Number:** 11GG-8	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		X Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: NO FLOW OBS DURING SURVEY BUT PONDING OF WATER PRESENT			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 11HH	Downstream: N/A	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: ½ - 2'		Silts	X	Sands		Muck	RB: FOREST
	Artificial (man-made)	Depth: 0 - 6"		Cobbles		Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			LB: FOREST
	Other:	MOD. STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1						
Notes:									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: SEPT Year: 2018												
X	No rain	X	0-0.5										X			
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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							
X	Yes		Clear, natural line impressed on the bank		Sediment deposition		Sediment sorting
	No		Changes in the character of soil	X	Water staining	X	Scour
			Shelving	X	Presence of flood litter/debris	X	Observed/predicted flow events
		X	Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		Abrupt change in plant community
		X	Leaf litter disturbed	X	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:
Notes:					

Waters of the U.S. Data Sheet Verified MRS 6/12/18

Project: ~~I-495 IRVM – PG County~~ 495/270 Managed Lane Study		**Feature ID:** ~~W62PG~~ 11 H	**Stream Order:**
Date: ~~5/18/15~~ 6/12/18	**State:** MD	**Photos:** ~~2~~ 359-360	
Crew: ~~KJH, RDS~~ MRS/ET	**County:** Prince George's	**Last Flag Number:** ~~W62-1B~~ N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Intercepts ground water

Hydrologic Connectivity –	Upstream: culvert draining I-495 median	Downstream: ~~09-E~~ 11F-WET	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately stable	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ ~~3:1~~ ☐ ≤4:1			

Notes: channel straightened

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: ~~April~~ June	Year: ~~2015~~ 2018
◉ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4	○ -3 ○ -2	○ -1 ○ 0 ◉ 1
○ Light rain	⊗ 0.5-1	Severe Drought	Moderate Drought	Normal
⊗ Heavy Rain	○ >1			

○	○	○	○	○	○	○	○	◉	○	○	○	○	○								
-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6									
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		
☑ 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/debris	☑ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 managed lane City/County: Prince George's Sampling Date: 12/6/18
Applicant/Owner: MDOT SHA State: MD Sampling Point: WL14-Ref
Investigator(s): MM/EW Section, Township, Range:
Landform (hillslope, terrace, etc.): forest flat Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 149B Lat: 39.016769 Long: -76.914276 Datum:
Soil Map Unit Name: Downer-Hammonton-Urban land complex, 0-5% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: feature originally mapped on 10/23/18, but was outside study area. Returned on 12/6/18 to collect data point since area was included in LOD expension

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 8"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sparsely vegetated concave surface. No apparent outlet mucky
Accumulates sheetflow and concentrated flow from area near highway

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 11 WW

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Red maple Acer rubrum	40	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Sapling/Shrub Stratum (Plot size: 20' radius)			
1.			
2. Red maple Acer rubrum	T		
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 20' radius)			
1. Boehmeria cylindrica	10	Y	FACW
2. Carex lurida	5	N	OBL
3. Persicaria punctata	10	Y	OBL
4. Toxicodendron radicans	5	N	FAC
5. Lonicera japonica	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Woody Vine Stratum (Plot size: 20' radius)			
1.			
2.			
3. None			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

trees and woody veg on edge of depression

SOIL

Sampling Point: 11 HH

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	70	7.5YR 4/6	30	C	M	loam	
5-12	10YR 3/2	90	7.5YR 4/6	10	C/L	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development 50 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 WIT

Latitude 39.016769 Longitude -76.919276

Prepared by: KWS Date 12/6/18

Wetland Impact:
Type PFO Area 0.03AC.

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified 6/12/18 MRS

495/270 Managed Lanes Study

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

6/12/18

Project/Site: ~~I-495 NB Managed~~ City/County: Prince George's Sampling Date: ~~5/29/15~~ 11 I

Applicant/Owner: SHA State: MD Sampling Point: ~~W-EE-WET~~

Investigator(s): ~~KS/EDS~~ MRS/JET Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR or MLRA): MLRA 149A Lat: 38.910196 Long: -76.902178 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

Wetland drains to pipe inlet that drains outside the ROW fence.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ✓ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

High water table & saturation observed in wetland outside plot point.

11I

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~DA-FF-[illegible]~~ 7

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling Stratum (Plot size: 10')			
1. Fraxinus pennsylvanica	5%	Y	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: 10')			
1. Acer rubrum	30%	Y	FAC
2. Smilax rotundifolia	30%	Y	FAC
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 10')			
1. Carex gravi	90%	Y	FACW
2. Carex lurida	1%	N	OBL
3. Fraxinus pennsylvanica	10%	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		
Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: ~~Data Point~~ WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	2.5Y 3/1	80%	7.5YR 4/6	20%	C	PL, M	Si Hy Loam	
5-7"	2.5Y 7/2	90%	5YR 5/8	10%	C	PL	Sand	
7-12"	2.5Y 4/2	60%	7.5YR 5/8	40%	C	PL, M	Si Hy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Photos 15-19

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.05Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forested, roadside Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 I

Latitude 39.010196 Longitude -76.902478

Prepared by: MRS Date 6/12/18

Wetland Impact:
Type PFO Area 0.05Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lane Study City/County: Prince George's Sampling Date: 5/1/19
Applicant/Owner: SHA State: MD Sampling Point: III-UPL
Investigator(s): MRS/CAS Section, Township, Range: _____
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR or MLRA): MLRA 149A Lat: 39.010306 Long: -76.905163 Datum: NAD/WGS 84
Soil Map Unit Name: Udorthents, loamy 0-to-5% slopes; Zekiah + Issue soils, freq. flooded NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Berm feature in between wetland III and Indian Creek

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 11-UPL

Tree Stratum (Plot size: 20x60)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	70	Yes	FAC
2. Liquidambar Styraciflua	5	No	FAC
3. Ilex opaca	5	No	FAC
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 20x60)			
1. Carpinus caroliniana	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: 20x60)			
1. Ilex opaca	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 20x60)			
1. Smilax rotundifolia	3	Yes	FAC
2. Berberis thunbergii	3	Yes	UPL
3. Lonicera japonica	2	No	FACU
4. Carex radiata	1	No	FAC
5. Viola sororia	1	No	FAC
6. Parthenocissus quinquefolia	1	No	FACU
7.			
8.			
9.			
10.			
11.			
	11 = Total Cover		
50% of total cover: 5.5	20% of total cover: 2.2		
Woody Vine Stratum (Plot size: 20x60)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).
On a levy, a lot of bare ground and gravel in soil. No FACW or OBL species.

SOIL

Sampling Point: 11II-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/4	100					loam	roots
3-9	10YR 4/3	100					↓	
9-12	10YR 4/3	100					↓	with fine gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 5/1/19

Applicant/Owner: SHA State: MD Sampling Point: 11 II-WET

Investigator(s): MRS/CAS Section, Township, Range: _____

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): MLRA 149A Lat: 39.010285 Long: -76.905689 Datum: NAD83/WGS84

Soil Map Unit Name: Udorthents, loamy 0 to 5% slopes; Zekiah + Issue soils, frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:
Floodplain wetland set back from Indian Creek along roadway

Photos 137-141

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 111-WET

Tree Stratum (Plot size: 30x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica	30	Yes	FAC
2. Acer rubrum	30	Yes	FAC
3. Liquidambar styraciflua	20	Yes	FAC
4. Carpinus caroliniana	5	No	FAC
5.			
6.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		

Sapling Stratum (Plot size: 30x30')			
1. Nyssa sylvatica	40	Yes	FAC
2. Carpinus caroliniana	20	Yes	FAC
3. Ilex opaca	10	No	FAC
4. Fagus grandifolia	10	No	FACU
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Shrub Stratum (Plot size: 30x30')			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30x30')			
1. Lonicera japonica	10	Yes	FACU
2. Carex folliculata	10	Yes	OBL
3. Carex radiata	10	Yes	FAC
4. Viola sororia	10	Yes	FAC
5. Smilax rotundifolia	5	No	FAC
6. Impatiens capensis	2	No	FACW
7. Toxicodendron radicans	2	No	FAC
8.			
9.			
10.			
11.			
	49 = Total Cover		
50% of total cover: 24.5	20% of total cover: 9.8		

Woody Vine Stratum (Plot size: 30x30')			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).
Some dead understory trees (green ash?). A lot of Nyssa + Quercus palustris/bicolor outside plot.

SOIL

Sampling Point: 1.1III-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	90	7.5YR 5/6	10	C	M	Loamy Clay	possible clay fill throughout
4-16	10YR 4/3	50	10YR 3/2	30	D	M	↓	
			7.5YR 5/6	20	C	M		
			10YR 5/1	10	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- X Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland may have fill, resulting in bright color & more clay than expected for the region/land-form. Likely disturbed during construction of metro station because the wetland is in between road slope and a berm, separating it in part from Indian Creek.

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.31 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forested floodplain and railway Distance to nearest roadway or other development 55 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. III

Latitude 39.010462 Longitude -76.905231

Prepared by: MRJ Date 5/1/19

Wetland Impact:
Type PFO Area 0.31 Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				wetland is depression on wetland that recieves infrequent flood flow but frequent roadway runoff
Floodflow Alteration		✓			infrequent flood inundation and small storage volume
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			infrequent inundation
Nutrient Removal		✓			infrequent inundation
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** W5	**Stream Order:**
Date: 6/14/18	**State:** MD	**Photos:** 329-332	
Crew: MRS/CT	**County:** Prince George's	**Last Flag Number:** W5-7	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: holding several inches of surface water			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: W1K	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2.6'	✓ Silts	✓ Sands	☐ Muck	RB: forest
✓ Artificial (man-made)	Depth: 0"-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ✓ ≤4:1			
Notes: swale at foot of roadway embankment					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: June	Year: 2018
✓ No rain	◉ 0-0.5	○ ○ ○ ○ ○ ○ ○ ◉ ○ ○ ○ ○ ○		
○ Light rain	○ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6		
○ Heavy Rain	✓ >1	Severe Drought / Moderate Drought / Normal / 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			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495 Segment 11 City/County: PG Sampling Date: 6/12/18
Applicant/Owner: SHA State: MD Sampling Point: 11K-WET
Investigator(s): MRS/ET Section, Township, Range:
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR or MLRA): MLRA Lat: 39.010781 Long: -76.903276 Datum: WGS84
Soil Map Unit Name: UdaF (Udorthents) NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Wetland contained within swale, lined by concrete along north side. Drains to 11K. Within forest canopy of red maple. Photos 373-376

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0.5"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Gravel refusal at 10"

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 11 K-WET

Tree Stratum (Plot size: 10' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Sapling/Shrub Stratum (Plot size: 10' x 20')			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Herb Stratum (Plot size: 10' x 20')			
1. Peltandra virginica	70	Y	OBL
2. Scirpus sp.	10	N	N/A
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size: 10' x 20')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Vegetation is mostly PEM with a thin canopy of Red Maple

SOIL

Sampling Point: UK-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					organic	
2-10	10YR 6/2	80	10YR 2/6	20	C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: gravel

Depth (inches): 10

Hydric Soil Present? Yes ☑ No ☐

Remarks:

hit refusal @ 10"

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.05AC Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forested Distance to nearest roadway or other development >40 ft

Dominant wetland systems present PEM, thin tree cover Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 K

Latitude 39.010781 Longitude -76.903276

Prepared by: MRS Date 6/12/18

Wetland Impact:
Type PFO Area 0.05AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Verified 6/12/18 MRS

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM - PG County~~ 495/270 Managed Lanes Study		**Feature ID:** ~~09-AA~~ 11L	**Stream Order:**
Date: ~~5/29/2015~~ 6/12/18	**State:** MD	**Photos:** ~~2 & 3~~ 364 - 365	
Crew: ~~KJH, RDS~~ MRS/ET	**County:** Prince George's	**Last Flag Number:** ~~09-AA-5B~~ 11L-2a/b	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	⊗ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Indian Creek - Large perennial stream			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: outside study area	Downstream: outside study area	Adjacent/Abutting: ~~09-I, 09-Y, 09-DD~~ 11K, 11M

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 40'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-3'	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately stable	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ June Year: ~~2015~~ 2018													
⊙ No rain	⊙ 0-0.5	○	○	○	○	○	○	○	⊙	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☑ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet Verified 6/12/18 MRS

Project: ~~I-495 IRVM - PG County~~ 495/270 Managed Lanes Study		**Feature ID:** ~~09-DD~~ 11M	**Stream Order:**
Date: ~~5/29/2015~~ 6/12/18	**State:** MD	**Photos:** ~~10~~ 377-381	
Crew: ~~KJH, RDS~~ MRS/ET	**County:** Prince George's	**Last Flag Number:** ~~09-DD-7B~~ N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intercepts groundwater, weakly flowing throughout channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~09-CC~~ 11O	Downstream: ~~09-AA~~ 11L	Adjacent/Abutting: ~~09-EE~~ 11N

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
✓	Natural Channel Shape	Width: 3 - 5'	✓	Silts	☐	Sands	✓	Muck	RB: Forest
☐	Artificial (man-made)	Depth: 3"	☐	Cobbles	☐	Gravel	☐	Other:	
✓	Manipulated (man-altered)	Bank Erosion/stability:	☐	Bedrock	☐	Concrete			LB: Forest
☐	Other:	Moderately stable	Side slope: ✓ ≥1:1 ☐ 2:1 ✓ 3:1 ✓ ≤4:1						

Notes: feature as at footslope of rockway embankment

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ June Year: ~~2015~~ 2018													
● No rain	● 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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					
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified 6/12/18 MRS

495/270 Managed Lanes Study

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

6/12/18

Project/Site: ~~I-495 NB VA-Kafoury~~ City/County: Prince Georges Sampling Date: ~~09 EE WET~~

Applicant/Owner: SHA State: MD Sampling Point: ~~5/29/15~~

Investigator(s): ~~KJH/EDS~~ MRS/ET Section, Township, Range: 11 N

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): MLRA 149A Lat: 39.011488 Long: -76.904123 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 11"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 6"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photos 382-383 on 6/12/18

11 N

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~[illegible]~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5 x 10')			
1. Acer rubrum	10%	N	FAC
2. Liquidambar styraciflua	70%	Y	FAC
3.			
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 5 x 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 5 x 10')			
1. Ulmus rubra	5%	Y	FAC
2. Acer saccharinum	10%	Y	FAC
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5 x 10')			
1. Toxicodendron radicans	50%	Y	FAC
2. Symplocarpus foetidus	20%	Y	OBL
3. Peltandra virginica	5%	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Woody Vine Stratum (Plot size: 5 x 10')			
1. Toxicodendron radicans	20%	Y	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes J No ___

Remarks: (If observed, list morphological adaptations below).

11 N

SOIL

Sampling Point: ~~DP 11 N/T~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR2/1	70%	7.5YR4/4	30%	C	M	Silt Loam	
4-7"	7.5YR4/6	60%	2.5Y4/2	40%	D	M	Clay loam	
7-13"	10YR4/2	100%					Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forested Distance to nearest roadway or other development 45ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11N

Latitude 39.011488 Longitude -76.904123

Prepared by: MRS Date 6/12/18

Wetland Impact:
Type PFO Area 0.02AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified 6/13/18 MRS

495/270 Managed Lanes Study

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

6/13/18

Project/Site: ~~I-495 IRWP - PG County~~ City/County: Prince Georges Sampling Date: ~~5/29/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~09-22-WET~~ 110

Investigator(s): ~~CJH, RS~~ MRS / AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): MLRA 149A Lat: 39.011864 Long: -76.904574 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo ~~7-8~~ 1818 - 1822

110

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~29~~

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 15')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 10')			
1. Typha angustifolia	50%	Y	OBL
2. Phalaris arundinacea	40%	Y	OBL
3. Sagittaria latifolia	2%	N	OBL
4. Phragmites australis	10%	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	102 = Total Cover		
50% of total cover: 51	20% of total cover: 20.		
Woody Vine Stratum (Plot size: 20')			
1. Solanum dulcamara	10%	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

wetland in 2015 is largely dominated by Phragmites ~80%

SOIL

Sampling Point: 110 ~~DataPoint~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 3/2	70%	7.5YR 4/6	30%	C	M, PL	Silt Loam	
6-12"	10YR 4/2	60%					Loamy Sand	
	10YR 3/2	40%						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.25AC Human made? Yes → drainage swale Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use roadway Distance to nearest roadway or other development 35 ft

Dominant wetland systems present PEM - Phragmites Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 110

Latitude 39.01864 Longitude -76.904574

Prepared by: MRS Date 6/13/18

Wetland Impact:
Type PEM Area 0.25AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified 6/13/18 MLS

495/270 managed Lane Study

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

6/13/18

Project/Site: ~~I-495 IRVM – PG County~~ City/County: Prince George's Sampling Date: ~~5/24/18~~

Applicant/Owner: CHA State: MD Sampling Point: ~~SP-WET~~

Investigator(s): ~~KW/RDS~~ MRS/AGA Section, Township, Range: 11P

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): MLRA 149A Lat: 39.012977 Long: -76.906282 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

feature is narrow and confined by steep slopes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photos 5-6
1813-1817

Surface water present within wetland outside plot point.

11 P

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 09 BB ~~C~~ T

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. Nyssa sylvatica	20%	Y	FAC
2. Quercus phellos	40%	Y	FACW
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling Stratum (Plot size: 10')			
1. Nyssa sylvatica	5%	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: 10')			
1. Fraxinus pennsylvanica	<5%	Y	FACW
2.			
3. Shrub honeysuckle	T	N	FACU
4. Lonicera morrowii			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 0')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

11 P

SOIL

Sampling Point: ~~24-B13-L2-7~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1"	7.5YR 5/4	100					Silt Loam	
1-12"	10YR 3/2	70%	7.5YR 4/6	30%	C	M, PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.16Ac Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? NO

Adjacent land use Roadway Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11P

Latitude 39.012977 Longitude -76.906252

Prepared by: MMS Date 6/13/18

Wetland Impact:
Type PFO Area 0.16

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's Sampling Date: 6/13/2018
Applicant/Owner: MD SHA State: MD Sampling Point: 11Q-wet
Investigator(s): MRS + AGA Section, Township, Range:
Landform (hillslope, terrace, etc.): stream gully Local relief (concave, convex, none): concave Slope (%): 1-5%
Subregion (LRR or MLRA): MLRA Lat: 39.019279 Long: -76.920461 Datum: WGS84
Soil Map Unit Name: Issue - urban land complex NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Photo 1832 – 1834 (general wetland photos)
1841 ⇒ soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 3"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
culvert conveys intermittent 11S into 11Q PEM.
11Q drains to intermittent 11R.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 11 Q-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5x10 rectangular plot)			
1. Juncus effusus	45	Y	OBL
2. Impatiens capensis	25	Y	FACW
3. Typha latifolia	25	Y	OBL
4. Carex lurida	5	N	OBL
5. Phalaris arundinacea	5	N	OBL
6. Arthraxon sp.	5	N	N/A
7.			
8.			
9.			
10.			
11.			
12.			
	~~0~~ 110 = Total Cover		
50% of total cover: ~~0~~ 55	20% of total cover: ~~0~~ 22		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 116-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR3/1	100					Silty Sandy Loam	same
2-8"+	10YR5/2	80	7.5YR5/6	20	C	M	Sandy Clay Loam	- Red fill noted throughout soils 2" & below
gravel layer 8"+								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel refusal

Depth (inches): 8+11

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Mowed grass of park Distance to nearest roadway or other development 25 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present no

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11Q

Latitude 39.019347 Longitude -76.820412

Prepared by: MRS Date 6/13/18

Wetland Impact:
Type PEM Area 0.03Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓			✓	
Nutrient Removal	✓			✓	
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation	✓				
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 11R	**Stream Order:**
Date: 6/25/18	**State:** MD	**Photos:** 1885-1888, 1890-1891	
Crew: MRS / AGA	**County:** Prince George's	**Last Flag Number:** not flagged - previously surveyed extended to 11R-1	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: well defined channel but areas of channel are dry			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 11 R+ 11 S	Downstream: 11 T	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (NHSS)
☐ Natural Channel Shape	Width: 2'-6'	✓ Silts	✓ Sands	☐ Muck	RB: forest – narrow
☐ Artificial (man-made)	Depth: 0.-1.0'	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: moderate	☐ Bedrock	✓ Concrete		LB: forest – narrow
☐ Other:		Side slope: ✓ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			
Notes: Channel is straightened and concrete lined					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php								Month: June		Year: 2018			
✓	No rain	✓	0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○	
○	Light rain	✓	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Redland Banks	Ordinary High Water Mark			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 11S	**Stream Order:**
Date: 6/13/18	**State:** MD	**Photos:** 1835 - 1840	
Crew: MRS/AGA	**County:** Prince George's	**Last Flag Number:** 11S-8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Well defined but shallow channel → had water during visit but had abundant rain recently			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: unknown	Downstream: 11Q & 11R	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3'-6'	☑ Silts	☑ Sands	☐ Muck	RB: forest + mowed lawn
☐ Artificial (man-made)	Depth: 0.1'-0.5'	☐ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable except at culvert	☐ Bedrock	☐ Concrete		LB: forest + mowed lawn
☐ Other:		Side slope: ☐ ≥1:1 ☑ 2:1 ☑ 3:1 ☑ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php - Month: June Year: 2018												
⊘ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊘ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☑ Observed/~~predicted~~ flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 11T	**Stream Order:**
Date: 6/28/2018	**State:** MD	**Photos:** 1899 - 1902	
Crew: NRS + AGA	**County:** Prince George's	**Last Flag Number:** 11T - 4A & 4B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: observed flow during visit, good amount of water in the channel, large channel with fluvial features			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 11R	Downstream: unknown	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6-15'	☒ Silts	☒ Sands	☐ Muck	RB: Hedgerow adjacent to parking lot
☐ Artificial (man-made)	Depth: 3" - 10"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: Hedgerow adjacent to Rhode Island Ave.
☐ Other:	Moderate Stable	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Portion of the stream is concrete lined / natural bed material					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: June	Year: 2018
☒ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-95/270 Managed Lane Study City/County: Prince George's Co. Sampling Date: 10/12/18

Applicant/Owner: MDOT - SHA State: MD Sampling Point: WL4-wet

Investigator(s): MRS/EJG Section, Township, Range: Greenbelt

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): none/concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.01088055 Long: -76.90154763 Datum: NAD83

Soil Map Unit Name: Zekiah & Issue soils, frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: large wetland on Indian creek floodplain, Area within project is forested but wetland continues outside project Area as a dense Phragmites marsh

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 1-2"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: large wetland complex on Indian creek floodplain. wetland not likely to receive direct flows from Indian creek under ...

Sampling Point: 11c wet

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 25' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Red maple Acer rubrum	80	Y	FAC
2. sweet gum Liquidambar styraciflua	20	N	FAC
3. Quercus bicolor	10	N	FACW
4. Quercus phellos	5	N	FACW
5.			
6.			
7.			
8.			
	115	= Total Cover	
50% of total cover: 57	20% of total cover: 22		

Sapling/Shrub Stratum (Plot size: 20' radius)			
1. Q. bicolor	5	Y	FACW
2. Sweetgum Liquidambar styraciflua	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30' radius)			
1. St. Herass Microstegium vimineum	30	Y	FAC
2. Phragmites australis	20	Y	FACW
3. Lonicera japonica	30	Y	FACU
4. Cinna arundinacea	10	N	FACW
5. Smilax rotundifolia	10	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	
50% of total cover: 50	20% of total cover: 20		

Woody Vine Stratum (Plot size: _____)			
1.			
2. None			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (If observed, list morphological adaptations below).

feature 11c is the ~~edge~~ woody edge of a larger wetland system dominated by PEM. PEM wetland, are primarily outside the project area

SOIL

Sampling Point: 11L-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	5YR 3/4	5	C	PL	silt	
4-14	10YR 4/2	80	5YR 3/4	20	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland >3.0Ac Human made? NO Is wetland part of a wildlife corridor? No or a "habitat island"? NO

Adjacent land use forest roadway Distance to nearest roadway or other development 30-55'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11U

Latitude 34.010872 Longitude -76.901617

Prepared by: MRS Date 10/12/18

Wetland Impact: Type PFO Area >3.0Ac

Evaluation based on: Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		2, 7, 8, 9, 13	✓	
Floodflow Alteration	✓		1, 4, 5, 6, 7, 8, 9, 10, 11, 13, 18	✓	
Fish and Shellfish Habitat		✓	4, 14		
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 5, 6, 7, 10, 12, 14, 15, 16	✓	
Nutrient Removal	✓		3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14	✓	
Production Export	✓		1, 2, 4, 5, 7, 8, 9, 12, 14	✓	
Sediment/Shoreline Stabilization	✓		2, 3, 4, 5, 7, 9, 15		
Wildlife Habitat	✓		5, 6, 7, 8, 13, 14, 15, 16, 19		
Recreation		✓	5, 12		
Educational/Scientific Value		✓	5,		
Uniqueness/Heritage		✓	1, 2, 19, 22		
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: 495/270 MAN. LANES STUDY		**Feature ID:** 11V	**Stream Order:**
Date: 10/12/18	**State:** MD	**Photos:** 4341 - 4349	
Crew: MKS, EHG	**County:** Prince Georges	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING OBS DURING VISIT MORE SO THAN USUAL. perennial ditch			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: N/A	Downstream: INDIAN CREEK (11L)	Adjacent/Abutting: 11 N (WETLAND)

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3 - 8'	☐ Silts	☐ Sands	☒ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 5 - 15"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		LB: FOREST
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: STABLE BY VEGETATION. LOTS OF SUBMERGED WOODY DEBRIS					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: September Year: 2018
⊗ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4 Severe Drought	○ -3 ○ -2 Moderate Drought
○ Light rain	◉ 0.5-1	○ -1 ○ 0 ○ 1 Normal	○ 2 ○ 3 Moderately Wet
○ Heavy Rain	○ >1	◉ 4 ○ 5 ○ 6 Severely Wet	

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour
AS YOU GO DOWNSTREAM	☐ Shelving	☒ Presence of flood litter/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified MRS 10/16/18

495/270 Managed Lane study

11W

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

10/16/18

Project/Site: ~~I-495 IRWM - PG County~~ City/County: PG Sampling Date: ~~5/26/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~09-U-WET~~

Investigator(s): ~~KJH, RH~~ MRS/EYG Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): MLRA 149A Lat: 39.015142 Long: -76.907721 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

cattail swale between WMATA parking lot and highway ramp

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 3
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

10/16/18 photos 4362-4364

10/16/18 mrs

11W

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~09-U-WET~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ~~10'~~ 6')			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 6' ~~10'~~)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 6' ~~10'~~)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 6' ~~10'~~)			
1. Typha latifolia	95 ~~80~~	Y	OBL
2. Echinochloa crus-galli	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: ~~10'~~ 6')			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

10/16/18
MLS

11 W

SOIL

Sampling Point: ~~UP-11-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	90	5YR 5/6	10	C	PL	Silt loam	
4-11	10YR 4/3	80	7.5YR 4/6	10	C	M	Loam	
			2.5Y 4/2	10	D	M		
0-2	10YR 2/1	100					organic rich silt	No redox; a lot of organics
2-12	2.5Y 5/2	60	10YR 5/6	40	C	M	silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ~~X~~ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ~~X~~ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.01AC Human made? NO Is wetland part of a wildlife corridor? No or a "habitat island"? yes

Adjacent land use Parking lot + roadway Distance to nearest roadway or other development 62 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 W

Latitude 39.015142 Longitude -76.907721

Prepared by: MRS Date 12/16/18

Wetland Impact:
Type PEM Area 0.01AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

verified 10/16/18 MRS

495/270 Managed Lane Study

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

10/16/18

Project/Site: ~~I-495 IRVM PG County~~ City/County: PG Sampling Date: ~~5/26/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~09-V-WET~~ 11K

Investigator(s): ~~KJH, KH~~ MRS/EXG Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): MLRA 149A Lat: 39.013938 Long: -76.906138 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

~~Photos 354~~

feature is vegetated swale between 495 and ramp from WMATA Beltsville parking lot onto 495/95 north

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

10/16/18 photos 1365 - 1366

11K

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: ~~UP-V-WET~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 10')			
1. Phyllanthus urinaria	80	Y	FACW
2. Fourcroya radicans	5	N	FAC
3. Parthenocissus quinquefolia	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

11 K

SOIL

Sampling Point: ~~09 V WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 4/2	80	5YR 4/6	20	C	M	Sandy loam	
2-6	2.5Y 5/3	100	-	-	-	-	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: 10"

Depth (inches): refusal - concrete lined channel

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.03AC Human made? NO Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Roadway embankment Distance to nearest roadway or other development 45 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11K

Latitude 39.014009 Longitude -76.906242

Prepared by: KMS Date 10/16/18

Wetland Impact:
Type PEM Area 0.03AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified 10/16/18

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM – PG County~~ 495/270 Managed Lane Study		**Feature ID:** ~~09-W~~ 11Y	**Stream Order:**
Date: ~~5/26/15~~ 10/16/18	**State:** MD	**Photos:** ~~5~~ 4371-4373	
Crew: ~~KJH, KH~~ MRW/EAG	**County:** Prince George's	**Last Flag Number:** ~~6B~~ not flagged, all polygon used	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Water observed in channel

Hydrologic Connectivity –	Upstream: ~~09-V~~ 11X	Downstream: ~~09-X~~ 11Z	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-5'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-5"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~April~~ September Year: ~~2015~~ 2018													
◉ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	⊗	○	○	◉	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified 10/16/18 MRS

495/270 Managed Lane Study

11 Z

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

10/16/18

Project/Site: ~~I-495 TRVTL~~ PG County City/County: Prince George's Sampling Date: ~~5/20/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~69 X WET~~

Investigator(s): ~~KJH, KH~~ MRS/EYG Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): MLRA 149A Lat: 39.012581 Long: -76.904251 Datum: WGS84

Soil Map Unit Name: Udorthents NWI classification: ~~PEM~~ PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☑ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): <1
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

photos 4393-4394 on 10/16/18

10/16/18

11 2

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: ~~UPLAND~~ T

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2. Ulmus rubra	60	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling/Shrub Stratum (Plot size: 20')			
1. Liquidambar styraciflua	30	Y	FAC
2. Magnolia virginiana	5	N	FACW
3. Viburnum dentatum	10	Y	FAC
4. Acer rubrum	5	N	FAC
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 10')			
1. Phragmites australis	30	Y	FACW
2. Sagittaria latifolia	20	Y	OBL
3. Carex crinita	40	Y	FACW
4. Symplocarpus foetidus	10	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 20')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks: (If observed, list morphological adaptations below).

10/16/18

11 2

SOIL

Sampling Point: ~~OP-X-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 4/2	70	7.5YR5/6	30	C	M/PL	Silt loam	
8-12	10YR 3/2	60	7.5YR5/6	5	C	M	silty clay loam	
	10YR 4/2	35						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.79Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 11 Z

Latitude 39.012581 Longitude -76.921251

Prepared by: MRS Date 10/16/18

Wetland Impact: Type PFO Area 0.79 Ac

Evaluation based on: Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓	7, 5, 9, 13		
Floodflow Alteration	✓		1, 2, 3, 4, 5, 6, 7, 9, 10, 13, 16, 18	✓	
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 5, 7, 10, 12, 13, 14, 15, 16,	✓	
Nutrient Removal	✓		1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14	✓	
Production Export	✓		2, 4, 7, 8, 10, 12, 14		
Sediment/Shoreline Stabilization		✓	3, 4, 5,		
Wildlife Habitat		✓	7, 8, 13, 14, 17		
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 4/5/18

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

4/5/18

Project/Site: ~~I-495/PG Co.~~ I495/I270 Managed Lane study City/County: Prince Georges Sampling Date: ~~4/29/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~W-2 Wet~~ 12A-WET

Investigator(s): ~~MRS/RL~~ MRS/RL Section, Township, Range:

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.015 957° Long: -76.95 2590° Datum: WGS 84

Soil Map Unit Name: Urban land, highway, 0 to 5 percent slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

edit by MRS

Hydrophytic Vegetation Present?	Yes ☑	No ☐	Is the Sampled Area within a Wetland? Yes X No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Roadside ditch that drains through 24" culvert pipe. End of feature near culvert pipe has stone lined bottom and standing water. Majority of feature is Phrag. and cattail wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0-4"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 1"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
photos 3142-3144

No upland data point was sampled because the soils were very compacted roadside fill and a soil pit could not be dug.

Verified MRS 4/5/18

12A-WET

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: ~~11-2-WET~~

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling/Shrub Stratum (Plot size:)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 10' radius)			
1. Phragmites australis	60	Y	FACW
2. Typha latifolia	20	Y	OBL
3. Lythrum salicaria	T	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	~~80~~ = Total Cover		

50% of total cover: ~~40~~ 20% of total cover: ~~16~~

Woody Vine Stratum (Plot size:)			
1. none			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	0
FAC species	x 3 =	0
FACU species	x 4 =	0
UPL species	x 5 =	0
Column Totals: 0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Verified MRS 4/5/18

12A-WET

SOIL

Sampling Point: ~~H-2-Wet~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 4/1	60	2.5Y 4/3	40	C	M/PL	Sandy loam with organic material
7-14	7.5YR 4/2	70	7.5YR 4/6	30	C	M/PL	Sandy silt, drier than 0-7"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 AC Human made? _____ Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Roadway + parking lot Distance to nearest roadway or other development 20'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12A-WET

Latitude 39.015497° Longitude -76.952990°

Prepared by: MRS Date 4/5/18

Wetland Impact:
Type PEM Area 0.03 AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				Minor functionality → provides minor filtering to storm water runoff
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				Minor functionality
Nutrient Removal	✓				Minor functionality
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 4/9/18

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

4/9/18

Project/Site: I-495/I-270 Managed Lane Study (~~IFLYM PG. CO.~~) City/County: Prince Georges Sampling Date: ~~4/[illegible]/18~~

Applicant/Owner: SHA State: MD Sampling Point: ~~TEST~~ 12AA-Wet

Investigator(s): ~~MRS/RAL~~ MRS+AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): forested depression Local relief (concave, none): none Slope (%): 2-3%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.020343 Long: -76.95 3532 Datum: WGS 84

Soil Map Unit Name: Woodstown Sandy loam, 2-5% slopes, Northern Coastal Plain NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

photos: 1215 – 1217 → 4/9/18

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): <2"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

~~Photos: 2115~~

370

Verified MRS 4/9/18

12AA-Wet

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: ~~HA 147~~

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Red maple (Acer rubrum)	50	Y	FAC
2. Black gum (Nyssa sylvatica)	30	Y	FAC
3. American Holly (Ilex opaca)	10	N	FAC
4.			
5.			
6.			
7.			
8.			
	0 90 = Total Cover		
50% of total cover: ~~45~~	20% of total cover: ~~18~~		

Sapling/Shrub Stratum (Plot size: 20' radius)			
1. Black gum (Nyssa sylvatica)	5	Y	FAC
2. Sweet Bay (Magnolia virginiana)	5	Y	FACW
3. Highbush Blueberry (Vaccinium corymbosum)	5	Y	FACW
4.			
5.			
6.			
7.			
8.			
	0 15 = Total Cover		
50% of total cover: 07.5	20% of total cover: 03		

Herb Stratum (Plot size: 10' radius)			
1. Smilax rotundifolia	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 0 10 = Total Cover		
50% of total cover: ~~0~~	20% of total cover: ~~0~~		

Woody Vine Stratum (Plot size: 20' radius)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ~~83%~~ 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

Verified MRS 4/9/18 12AA-Wet

SOIL

Sampling Point: [redacted]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 3/2	100					Loam	Organic rich
5-12	7.5YR 4/2	80	7.5YR 5/6	20	C	M	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.1 AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest + highway Distance to nearest roadway or other development 60'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 AA - Wet

Latitude 39.020343° Longitude -76.953532°

Prepared by: MRS Date 4/9/18

Wetland Impact:
Type PFO Area 0.1 AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				some minor GW recharge likely
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

495/270 Managed Lane Study

verified MRS 5/2/18

No Upl for 11-II

5/2/18

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: ~~IRVM - Prince George's County~~ City/County: PG Sampling Date: 2/26/16

Applicant/Owner: ~~MD SHA~~ SHA State: MD Sampling Point: ~~H-IT-WET~~ 12AAA

Investigator(s): ~~KSH, ET~~ MRS/AS Section, Township, Range:

Landform (hillslope, terrace, etc.): open field Local relief (concave, convex, none): none Slope (%): 0-1%

Subregion (LRR or MLRA): LRR S Lat: 39.02389 Long: -76.94668 Datum: WGS84

Soil Map Unit Name: Codorus and Hatboro soils, frequently flooded NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Photos ~~SET-SET28~~ 270-271

Receives hydrology from overflowing manhole and waters ~~H-RR~~ 12BBB

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

~~Conveys surface flow hydrology to W30PG (Paint Branch)~~

Southern portion removed from previous delineation because wetland no longer conveys water to Paint Branch (12II) and doesn't exhibit wetland characteristics

verified MPS 5/2/18

12AAA-wet

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: ~~11-EE-WET~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 10')			
1. Phalaris arundinacea	95	Y	OBL
2. Typha latifolia	10	N	OBL
3. Apocynum cannabinum	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	107 = Total Cover		
50% of total cover: 53.5 20% of total cover: 21.4			
Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

Verified MMS 5/2/18

12AAA

SOIL

Sampling Point: ~~H-II-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	95	7.5 YR 5/6	5	C	PL	S.H	12mm

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel Fill

Depth (inches): 6"

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.05 Ac Human made?_____ Is wetland part of a wildlife corridor? yes or a "habitat island"? No

Adjacent land use roadway, meadow Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12AAA

Latitude 39.02389 Longitude -76.94668

Prepared by: MRS Date 5/2/18

Wetland Impact:
Type PEM Area 0.05 Ac

Evaluation based on:
Office_____ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				very minor filtration of roadway runoff
Nutrient Removal	✓				"
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: 1495/1270 Managed Lanes Study		**Feature ID:** 12-AAAA	**Stream Order:**
Date: 11/27/18	**State:** MD	**Photos:** 2870-2881	
Crew: WRS/SLY	**County:** Prince George's	**Last Flag Number:** 12-AAAA-D	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: well formed channel with abundant flow but very small			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: none/outside study area Downstream: 12YYY + road Br. (outside study area) Adjacent/Abutting: 12DDDD

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1-6'	✓ Silts	✓ Sands	Muck	RB: Forested
✓ Artificial (man-made)	Depth: 1" – 9"	✓ Cobbles	✓ Gravel	Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: Moderately Stable	Bedrock	✓ Concrete		LB: Forested
Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			

Notes: Stream has concrete lining that becomes naturalized downstream, wetland draining into channel

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	
✓ No rain	X	0-0.5
Light rain		0.5-1
Heavy Rain		>1

Monthly Drought Condition
NCDC Regional PDSI
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php **Month:** October **Year:** 2018

-6	-5	-4	-3	-2	-1	0	1	2	3	X 4.84	5	6
Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	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:

Notes:

verified MRS 4/5/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

I-495/I-270 Managed Lane Study

Project / Site :	~~Capital Beltway~~	Date :	~~8/20/04~~
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ MRS/RL	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PEM2B/~~PFO1B~~
Is the area a potential Problem Area?	No	Transect ID :	~~W43 PG~~
(If needed, explain below.)		Plot ID :	TP-42
Explanation:			

4/5/18

12B-WET
~~MH 5-18-2015~~

Vegetation

forested area appears to have been impacted

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
PEM2B			PFO1B		
1 *Lythrum salicaria*	H	FACW+	1 *Acer rubrum*	T	FAC
2 *Leersia oryzoides*	H	OBL	2 *Liquidambar styraciflua*	T	FAC
3 *Eleocharis obtusa*	H	OBL	3 *Galium tinctorium*	H	OBL
4			4 *Viburnum dentatum*	S	FAC
5			5		
6			6		
7			7		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	√ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water 1 (in.)	√ Drainage Patterns in Wetlands
Depth to Free Water in Pit: 0 (in.)	Secondary Indicators (2 or more required):
	___ Oxidized root channels in Upper 12 Inches
Depth to Saturated Soil 0 (in.)	___ Water-Stained Leaves
	___ Local Soil Survey Data
	___ Fac-Neutral Test
	___ Other (Explain in Remarks)
Remarks:	

feature filled with riprap but field reviewed by USACE in March 2018

Photo 1113

Verified
MRS
4/5/18

12B-WET 4/5/18

Soils

Map unit name (Series and Phase):	Keyport silt loam	Drainage class	moderately well drained
Taxonomy (Subgroup):	Paraquic Normudults	Field observations confirm map type?	

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-3		10YR4/2			Silty Clay Loam
3-12		2.5YR4/2	7.5YR5/8	many/prominent	Sandy Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Soils
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes	Is this Sampling Point Within a Wetland?	Yes
Hydric Soils Present?	Yes		

Remarks: Flags W43PG-1A thru 17A and 1B thru 12B

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 AC Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use roadway, parking lot, utility ROW Distance to nearest roadway or other development 40'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12B-WET

Latitude 39.015286 Longitude -76.952575

Prepared by: MRS Date 4/5/18

Wetland Impact:
Type PEM Area 0.03 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				minor filtering of runoff
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Verified
MRS 4/9/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

I-495/I-270 Managed Lane Study 4/9/18

Project / Site :	~~Capital Beltway~~	Date :	~~8/18/04~~
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ AGA+MRS	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PFO1E
Is the area a potential Problem Area?	No	Transect ID :	~~w36~~
(If needed, explain below.)		Plot ID :	TP-36
Explanation:			

12BB-Wet
~~w36 PG~~
~~MRS - 4/22/15~~

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Magnolia virginiana*	S	FACW+	9		
2 *Acer rubrum*	T	FAC	10		
3 *Osmunda cinnamomea*	H	FACW	11		
4 *Smilax rotundifolia*	V	FAC	12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water _____ (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: 8" (in.)	___ Oxidized root channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil _____ (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)
Remarks:	

photos: 1218-1220

★ Abuts 12K (photos 1221-1222)

Verified
MRS 9/5/18

~~W36PG~~ 12BB-Wet

Soils

Map unit name (Series and Phase): Fallsington sandy loam
Drainage class: Poorly drained
Taxonomy (Subgroup): Typic Ochraquults
Field observations confirm map type? Yes

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-1		10YR2/1			Silt Loam
1-10		2.5Y3/1			Silty Clay Loam
10-13		10YR4/1	10YR3/6	many/faint	Sandy Clay Loam
13+		10YR6/2			Sandy Clay Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks: ~~Flags W36PG-1A thru 7A, W36PG-1B-7B and W36PG-10 thru 90~~

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.6AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest, highway Distance to nearest roadway or other development 60'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12BB-Wet

Latitude 39.020215 Longitude -76.955629

Prepared by: MRS Date 4/9/18

Wetland Impact:
Type PFO Area 0.6AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		7, 9, 13		observations of GW discharge in wetland upslope of channel 12K
Floodflow Alteration	✓		2, 3, 5, 9, 13		wetland may receive minor overbank flow from WLS 12K
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1, 4, 9, 10		
Nutrient Removal	✓		4, 7, 11,		
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet Verified MRS 5/2/18

Project: ~~I-495 IRVM – Prince George's County~~ 495/270 Managed Lanes Study	**Feature ID:** ~~11-RR~~ 12BBB	**Stream Order:** 1st
Date: ~~2/26/2015~~ 5/2/18	**State:** MD	**Photos:** ~~5925-5926~~ 269
Crew: ~~ET/KJH~~ MRS/AS	**County:** PG	**Last Flag Number:** ~~11-RR-1B~~ 012 polygon

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water and minimal to no vegetation in channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: ~~11H~~ 12AAA	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3-5'	☑ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☑ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Leaves	
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			LB: Forest
Notes: Originates at culvert outfall under ramp to I-95 north					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~January~~ Apr Year: ~~2016~~ 2018														
◉ No rain	~~○~~ 0-0.5	○	○	○	○	○	~~◉~~	○	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	~~◉~~ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 11/27/18
Applicant/Owner: SHA State: MD Sampling Point: A-BBBB
Investigator(s): MRS/SLY Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR or MLRA): MLRA 149 Lat: 39.025404 Long: -76.951136 Datum: WGS 84
Soil Map Unit Name: Codorus and Hatboro soils, frequently flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
Are Vegetation ☒, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Photos 2884-85

all green ash in canopy dead from emerald ash borer → problematic vegetation

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☑ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☑ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0
Water Table Present?	Yes ☑	No ☐	Depth (inches): 5"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: GW seepage at foot of roadway embankment

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 12-BBBB

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2.			
3. Dead Ash in canopy			
4. not included			
5. ↳ emerald ash borer damage			
6.			
	40 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Shrub Stratum (Plot size: 15' radius)			
1. Rosa multiflora	15	Y	FACU
2. Pyrus calleryana	2	N	UPL
3. Fatsia japonica	20	Y	UPL
4. Reynoutria			
5.			
6.			
	37 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Herb Stratum (Plot size: 10' radius)			
1. Rosa multiflora	20	N	FACU
2. Lonicera japonica	35	Y	FACU
3. Glechoma hederacea	10	N	FACU
4. Microstegium vimineum	30	Y	FAC
5. Mimulus ringens	2	N	OBL
6. Cinna arundinacea	15	N	FACW
7. Juncus effusas	5	N	OBL
8.			
9.			
10.			
11.			
	117 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Woody Vine Stratum (Plot size: 10' radius)			
1.			
2. None			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ○

Remarks: (Include photo numbers here or on a separate sheet.)
Several dead ashes in canopy and sampled late in season so wet herbs possibly under-represented

12-BBBB

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 4/2	100	—				loam	lots of organic material
2-6	2.5Y 4/2	80	10YR 4/4	20	C	M	silt	
6-12	10YR 4/2	60	10YR 3/4	40	C	M	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☑ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.07AC Human made? NO Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest and highway Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12BBBB

Latitude 39.028404 Longitude -76.951136

Prepared by: MRS Date 11/27/18

Wetland Impact:
Type PFO Area 0.07AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				GW seepage at foot of roadway embankment
Floodflow Alteration		✓			wetland is relatively small compared to floodplain
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 4/5/18

Stream Features
Field Sheet

4/5/18 495/I-270 Managed Lane study

Date: ~~8/30/04~~ Project Site: ~~Capital Beltway~~ Wetland # : ~~W43PG~~ ~~K-H~~ 2/16/16 ~~M-H~~ ~~H-QQ~~ ~~S-16-15~~ 12C MRS 4/5/18

Observer(s): ~~BJG, BMS, KCG~~ MRS/RL

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: 2%
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 28" Depth 4" Avg. Water Depth 1"

Has stream morphometry been altered? yes Describe type and degree:
piping and rip-rap in sections

Habitat and Pollutants:

Substrate (predominant type (s)): sand
Habitat Complexity (Characterize) low- pollution, murkey water, silt deposition, low flow, no pools
Bank Erosion: Severe _____ Moderate _____ Minor √
Describe: low flow and shallow banks
Silt Deposition: moderate
Pollutants (observation / potential sources): Iron flocculation, sheen
Stormwater Outfalls: 1

Riparian Zone:

Development: BARC to the right, carpool parking to the left
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: ~~Red Maple, Purple loosestrife, Rubis, Sweet Gum~~
Acer rubrum, Lythrum salicaria, Rubus allegheniensis, Liquidambar Styraciflua
Approximate % shading by woody species: 40%
Steepness of adjacent slopes: 1% each

Notes: ~~R2UB2, Flags W43PG-1A thru 17A and 1B thru 12B~~ Photos 1114-1116

Downstream of 12B - wet

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes City/County: Prince George's Sampling Date: 4/13/18
Applicant/Owner: SHA State: MD Sampling Point: 12CC-WET
Investigator(s): RL, MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 0-2%
Subregion (LRR or MLRA): MLRA 149A Lat: 39.019408 Long: -76.959760 Datum: WGS84
Soil Map Unit Name: Udorthents, highway, 0 to 05 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
Photo to 12DD wetland
Photos 1249-1252

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [X] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [X]	Depth (inches): 0
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 8

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Feature is a depression at the edge of the forest adjacent to a constructed SWM pond

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12CC-WET

Tree Stratum (Plot size: 10×10)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 ~~0~~ 10 = Total Cover		
50% of total cover: ~~0~~	20% of total cover: ~~0~~ 2		

Sapling/Shrub Stratum (Plot size: 10×10)			
1. Acer rubrum	10	Y	FAC
2. Rubus allegheniensis	5	–	NI
3.			
4.			
5.			
6.			
7.			
8.			
	0 15 = Total Cover		
50% of total cover: 0 7.5	20% of total cover: 0 3		

Herb Stratum (Plot size: 10×10)			
1. Scirpus cyperinus	20	Y	OBL
2. Persicaria pensylvanica	5	N	FACW
3. Microstegium vimineum	5	N	FAC
4. Persicaria hydropiper	5	N	OBL
5. Typha latifolia	10	Y	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 45 = Total Cover		
50% of total cover: 0 22.5	20% of total cover: 0 9		

Woody Vine Stratum (Plot size: 10X10)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (If observed, list morphological adaptations below).

Woody vegetation is on perimeter of wetland. Much of center of wetland is unvegetated (45% cover by herbaceous plants) but has extensive water-stained leaf cover.

SOIL

Sampling Point: 12CC-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	10YR 3/6	5	C	M	Silty Clay Loam	Faint redox
4-8	2.5YR 4/1	80	7.5YR 5/8	20	C	M	Silty Clay Loam	
8-10	2.5YR 5/3	85	10YR 3/6	15	C	M	Sandy Clay Loam	
10-14	10YR 4/1	70	7.5YR 4/6	25	C	M	Silty Clay	
			10YR 4/6	5	C	M		
14+	2.5Y 5/3	90	10YR 4/6	10	C	M	Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland <0.5AC Human made? maybe Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Forest, roadway, SWM pond Distance to nearest roadway or other development 60'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? upper basin

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12CC-WET

Latitude 39.019480 Longitude -76.959760

Prepared by: MRS Date 4/13/18

Wetland Impact:
Type PFO Area 0.5AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				wetland is a local low spot → holds water for infiltration
Floodflow Alteration		✓			feature not along stream or drainage way
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Verified mms 5/3/18

Stream Features
Field Sheet

495/270 Managed Lanes study

12ccc

Date: ~~8/20/04~~ 5/3/18 Project Site: Capital Beltway Wetland #: ~~W41P6~~ MH 5-18-15

Observer(s): ~~BJG, BMS, KCG~~ MRS/AGA

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____

Gradient: 1%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width ~~17"~~ 4' Depth ~~55"~~ 2'-6" Avg. Water Depth 1"

Has stream morphometry been altered? yes Describe type and degree:

halfway concrete until stream bend on map near flags 6A and 6B old

Habitat and Pollutants:

Substrate (predominant type (s)): sand/concrete

Habitat Complexity (Characterize) low- lots of silt reducing habitat, low flows

Bank Erosion: Severe √ Moderate _____ Minor _____

Describe: no buffer on right side after bend

Silt Deposition: significant

Pollutants (observation / potential sources): some iron flocculation, murkiness

Stormwater Outfalls: 1

Riparian Zone:

Development: Forested on left, agriculture / parking lot on right

Riparian vegetation: Forest √ Shrubs √ Herbs _____

Dominant Species: maples, arrow wood, river birch, tulip poplar

Acer spp., Viburnum dentatum, Betula nigra, Liriodendron tulipifera

Approximate % shading by woody species: 75%

Steepness of adjacent slopes: 0%

Notes: ~~R2UB2-CL for 1/2~~ ~~Flags 1-28A 1-29B~~ Photos 273-276

(275-276 = concrete-lined section)

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Prince George's Sampling Date: 11/27/18
Applicant/Owner: SHA State: MD Sampling Point: 12-CCCC
Investigator(s): MRS/SLY Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 149A Lat: 39.027809 Long: -76.951621 Datum: WGS 84
Soil Map Unit Name: Colonia and Hatboro, frequently flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Feature appears to be low spot/depression near a relatively new sewer vault → depression and resulting ponded water likely due to construction disturbance of soils
Photos 2888-89

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):
Water Table Present? Yes ☑ No ☐ Depth (inches): 5 11
Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Depression immediately adjacent to a new sewer vault. Depression may have been created by construction activity

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 12-cccc

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	15	Y	FAC
2. Platanus occidentalis	10	Y	FACW
3.			
4.			
5.			
6.			

12.5 = Total Cover

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 20' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			

0 = Total Cover

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			

= Total Cover

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 15' radius)			
1. Juncus effusus	35	Y	FACW
2. Scirpus polyphyllus	5	N	OBL
3. Brachemaria cylindrica	5	N	FACW
4. Microstegium vimineum	20	Y	FAC
5. Persicaria perfoliatum	5	N	FAC
6. Dichanthelium clandestinum	5	N	FAC
7. Ludwigia alternifolia	5	N	FACW
8. Typha latifolia	15	N	OBL
9.			
10.			
11.			

47.5 = Total Cover

50% of total cover: 0.0 20% of total cover: 0.0

Woody Vine Stratum (Plot size: 15' radius)			
1. None			
2.			
3.			
4.			
5.			

0 = Total Cover

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals:	(A) 0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 12-CCCC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					Silt	
2-5	2.5Y 3/2	80	7.5YR 3/4	20	C	M	Silt	some mica present
5-8	10YR 4/2	90	5YR 4/6	10	C	M, PL	Silt	
8-10	10YR 4/2	80	7.5YR 4/4	20	C	M, PL	sandy silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Hit refusal at 10"

Refusal possibly due to construction compaction of subsoils, or placed and compacted gravel or fill

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.03 AC Human made? Yes Is wetland part of a wildlife corridor? YES or a "habitat island"? NO

Adjacent land use forest, roadway Distance to nearest roadway or other development 65 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 CCCC

Latitude 39.027809 Longitude -76.957621

Prepared by: MRS Date 11/27/18

Wetland Impact:
Type PFO Area 0.03 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				small depression holds water for GW recharge
Floodflow Alteration		✓			feature very small relative to the surrounding floodplain
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

* Refer to backup list of numbered considerations.

Notes:

Verified 4/5-7/15
jjps

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

495/270 managed Lane study

4/5/15 and May 2019 (extended)

Project / Site :	~~Capital Beltway~~	Date :	~~8/4/04~~
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ mas/RL	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PFO1B
Is the area a potential Problem Area?	No	Transect ID :	~~W42~~
(If needed, explain below.)		Plot ID :	~~TP-41~~
Explanation:			

12D

~~TP-AA~~

~~jjps 4/29/15~~

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Acer rubrum*	H	FAC	9		
2 *Viburnum dentatum*	S	FAC	10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water N/A (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
	___ Oxidized root channels in Upper 12 Inches
Depth to Free Water in Pit: 0 (in.)	√ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil N/A (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

feature is to west and downslope of Parkside lot

~~feature outside study area~~

verified

495/270 Marginal area feature 12D

~~HAA~~

Soils

Map unit name (Series and Phase):	Keyport silt loam	Drainage class	Mostly well drained
Taxonomy (Subgroup):	Paraquic Normudults	Field observations confirm map type?	No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-1		10YR3/3	10YR4/6	few/faint	Silty Clay Loam
1-6		10YR4/2	10YR4/6	common/faint	Sandy Clay Loam
6+		10YR4/1	7.5Y4/6	few/distinct	Silty Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Soils
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Oxidized Rhizospheres

Wetland Determination

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes	Is this Sampling Point Within a Wetland?	Yes
Hydric Soils Present?	Yes		

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.29Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? _____

Adjacent land use forest Distance to nearest roadway or other development 110 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12D

Latitude 39.05152 Longitude -76.954344

Prepared by: MMS Date 4/5/18

Wetland Impact:
Type PFO Area 0.05 AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			✓	
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓			✓	
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/270 Managed Lanes Study		**Feature ID:** 12DD	**Stream Order:** NA
Date: 4/13/18	**State:** MD	**Photos:** 1253-1256	
Crew: MRS/RL	**County:** Prince George's	**Last Flag Number:** not flagged → previously surveyed	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial Pond (~~Flowing year round~~)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: feature is open-water SWM pond → in line with & regulated wetland and stream so is jurisdictional			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Wetland CC	Downstream: Waters EE	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 100'	☐ Silts	☐ Sands	☒ Muck	~~RB~~: mowed grass
☒ Artificial (man-made)	Depth: >2'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		~~LB~~:
☐ Other:	Stable	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: man-made SWM pond → regulated because in-line with regulated wetland					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
☒ No rain	☒ 0-0.5
○ Light rain	○ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI **Month:** March **Year:** 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

○	○	○	○	○	☒	○	○	○	○	○	○	○
-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☒ 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:
Notes:		

Final

Verified MRS 5/3/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

495/270 Managed Lanes Study

5/3/18

Project / Site :	~~Capital Beltway~~	Date :	~~8/26/04~~
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ MRS/AGA	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PEM2B
Is the area a potential Problem Area?	No	Transect ID :	~~W57PG~~
(If needed, explain below.)		Plot ID :	~~TP-55~~

12.DDD
MH ~~5-20-15~~

Explanation:

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Typha latifolia*	H	OBL	9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	√ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water <1 (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: 0 (in.)	___ Oxidized root channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 0 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

photos 0277-0279 on 5/3/18

Verified
MHS
5/3/18

12000

~~W57PG~~

MH
~~5-10~~ 15

Soils

Map unit name (Series and Phase):	Beltsville silt loam			Drainage class	moderately well drained
Taxonomy (Subgroup):	Typic Fragiudults			Field observations confirm map type?	No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-4		Fill			
4-8		2.5Y5/3	2.5Y5/6	many/faint	Sandy Clay Loam
8+		2.5Y5/3	10YR5/8	common/distinct	Sandy Clay Loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Soils
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Redox features, not enough time for development of soils

Wetland Determination

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes	Is this Sampling Point Within a Wetland?	Yes
Hydric Soils Present?	No		

Remarks: ~~Flags W57PG-1 thru 14~~

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.06Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use meadow/utility easement Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? _____ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 DDD

Latitude 39.015 Longitude -76.595

Prepared by: MRS Date 5/3/18

Wetland Impact:
Type PEM Area 0.06 Ac

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				small pocket of low ground pools water and allows infiltration
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

verified on 5/3/18
MMS

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

495/270 Managed Lane Study

5/3/18

Project / Site :	Capital Beltway	Date :	8/26/04
Applicant / Owner :	SHA	County :	PG
Investigator :	BJG, BMS, KCG MMS/DGA	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PEM2B
Is the area a potential Problem Area?	No	Transect ID :	w57PG
(If needed, explain below.)		Plot ID :	TP-55
Explanation:			

12DDDD

MH 5-20-15

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Typha latifolia*	H	OBL	9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

cattail filled depression receiving sheet flow from area between highway and ramp

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	√ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water <1 (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: 0 (in.)	___ Oxidized root channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 0 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)

Remarks: flows into 12FFF - ephemeral channel

photos 0277-0279 on 5/3/18

feature
12DDDD

Soils

Map unit name (Series and Phase): Beltsville silt loam
Taxonomy (Subgroup): Typic Fragiudults
Drainage class: moderately well drained
Field observations confirm map type? No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-4		Fill			
4-8		2.5Y5/3	2.5Y5/6	many/faint	Sandy Clay Loam
8+		2.5Y5/3	10YR5/8	common/distinct	Sandy Clay Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Redox features, not enough time for development of soils

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? No
Is this Sampling Point Within a Wetland? Yes

Remarks: ~~Flags W57PG-1 thru 14~~

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.06AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Powerline ROW, roadway Distance to nearest roadway or other development 40 FT

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 DDDD

Latitude 39.018027 Longitude -76.948811

Prepared by: MRJ Date 5/3/18

Wetland Impact:
Type PEM Area 0.06AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

* Refer to backup list of numbered considerations.

Notes:

Verified MRS 4/5/18

Stream Features
Field Sheet

Date: ~~8/20/04~~ 4/5/18 Project Site: Capital Beltway 495/I-270 managed lanes study Wetland #: ~~W42PG~~ 42 ~~MRS~~ 12E 4/28 - 4/29/15

Observer(s): ~~BJG, BMS, KCG~~ MRS / RL

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: 1%
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 3' Depth ~~1'~~ 2' Avg. Water Depth 6"

Has stream morphometry been altered? yes Describe type and degree:
several culverts and beaver dams

Habitat and Pollutants:

Substrate (predominant type (s)): mud
Habitat Complexity (Characterize) moderate- beaver activity has produced several deep pools
Bank Erosion: Severe _____ Moderate √ Minor √
Describe: undercutting of banks
Silt Deposition: significant
Pollutants (observation / potential sources): runoff from large parking lot
Stormwater Outfalls: 1

Riparian Zone:

Development: forest to right, oarking lot to left
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: ~~Beech, Sweet gum~~ Fagus grandifolia, Liquidambar styraciflua
Approximate % shading by woody species: _____
Steepness of adjacent slopes: right 12% and left 3%

Notes: ~~R2UB3; Flags W42PG-10A thru 21B~~

Adjacent to 12D (outside of study area)

Photos: 1121-1126
1130-1132

Waters of the U.S. Data Sheet

Verified, same datasheet, modified boundary 4/13/18 RL

Project: ~~I-495 IRVM - Prince George's County~~ I-495/I-270 Managed Lanes		**Feature ID:** ~~W35PG~~ 12 EE	**Stream Order:**
Date: ~~4/22/15~~ 4/13/18	**State:** MD	**Photos:** ~~3076-3082~~ 1257-1260	
Crew: ~~MRS/MBS~~ MRS/RL	**County:** PG	**Last Flag Number:** ~~W35PG-5A&B~~ N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Shallow flow in channel during site visit. Average water depth - 1"

Hydrologic Connectivity –	Upstream: None	Downstream: ~~W45PG~~ 12II	Adjacent/Abutting: ~~W31-PG~~ 12DD

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 8"	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor bank erosion	Side slope: ☐ ≥1:1 ☑ 2:1 ☑ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~April~~ March Year: ~~2015~~ 2018												
◉ No rain	◉ 0-0.5	○	○	○	○	○	⊗	◉	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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					
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lane Study City/County: Prince George's Sampling Date: 5/3/18

Applicant/Owner: SHA State: MD Sampling Point: 12 EEE-wet

Investigator(s): MRS + AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR or MLRA): MLRA 148B Lat: 39.020401 Long: -76.917792 Datum: WGS 84

Soil Map Unit Name: Colemantown, highway 0-65% slope NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? no Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

Photos 0280 – 0283

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): 0
Water Table Present?	Yes ☐	No ☑	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): To Surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Adjacent to powerlines in interchange between 495/95

12EEE

Sampling Point: WET

VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2. Nyssa sylvatica	60	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Pyrus calleryana sapling	30	N	UPL
2. Fraxinus pennsylvanica	10	N	FACW
3. Lonicera tatarica	45	Y	FACU
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 17		
Herb Stratum (Plot size: 10' radius)			
1. Lonicera japonica	10	Y	FACU
2. Allium vineale	2	N	FACU
3. Pyrus calleryana	2	N	UP
4. Fraxinus pennsylvanica	10	Y	FACW
5. multiflora rose	5	N	FACU
6. Toxicodendron radicans	5	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	34 = Total Cover		
50% of total cover: 17	20% of total cover: 7		
Woody Vine Stratum (Plot size: 15' radius)			
1.			
2. None			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12EFE - wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100					silty clay	
5-12	2.5YR 5/3	70	10YR 5/6	30	C	M	silty clay	
12-16+	2.5YR 5/2	80	10YR 4/6	10	C	M	silt clay loam	
			10YR 4/4	10	C	M	↓	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.18Ac Human made? NO Is wetland part of a wildlife corridor? yes or a "habitat island"?

Adjacent land use forest, utility ROW Distance to nearest roadway or other development 90 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12EEE

Latitude 39.020401 Longitude -76.477752

Prepared by: MKS Date 5/3/18

Wetland Impact:
Type PFO Area 0.18Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				minor storage of runoff
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project:	1495/1270 Managed Lanes Study		**Feature ID:**	12-EEEE	**Stream Order:**
Date:	11/27/18	**State:** MD	**Photos:**	2897-2899	
Crew:	MRS/SLY	**County:** Prince Georges	**Last Flag Number:**	12EEEE-5	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Well-defined channel with abundant flow			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: N/A | Downstream: N/A | Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
✓	Natural Channel Shape	Width: 2-5'	✓ Silts	✓ Sands	Muck		RB: Forested
	Artificial (man-made)	Depth: 1-6"	Cobbles	✓ Gravel	Other:		
✓	Manipulated (man-altered)	Bank Erosion/stability: Stable	Bedrock	Concrete			LB: Forested
	Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☑ ≤4:1				

Notes: Natural channel flows into concrete channel. observed some fish in channel

Weather/Precipitation Conditions:

During Field Visit		**Inches of Rain Within Last Week**		**Monthly Drought Condition NCDC Regional PDSI** http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php **Month:** October **Year:** 2018												
✓	No rain	X	0-0.5											X		
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.84	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
✓	Yes		Clear, natural line impressed on the bank	✓	Sediment deposition	✓	Sediment sorting
	No		Changes in the character of soil	✓	Water staining on concrete	✓	Scour
			Shelving		Presence of flood litter/debris	✓	Observed/predicted flow events
		✓	Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:

Notes:

Verified
MRS
4/5/18

Stream Features
Field Sheet

4/5/18 I495/I270 managed lane study ~~W40PG~~ 12F

Date: ~~8/18/04~~ Project Site: ~~Capital Beltway~~ Wetland # : ~~40~~ ~~MRS - 4/10/18~~

Observer(s): ~~BJG, BMS, KCG~~ MRS/RL

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: 1%
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width ~~15'~~ MRS 5' Depth ~~2.5'~~ 3' Avg. Water Depth 2"

Has stream morphometry been altered? yes Describe type and degree:
several culverts and rip-rap

Habitat and Pollutants:

Substrate (predominant type (s)): gravel/cobble-sand
Habitat Complexity (Characterize) low to moderate, some pools

Bank Erosion: Severe _____ Moderate _____ Minor √
Describe: some exposed roots
Silt Deposition: significant
Pollutants (observation / potential sources): anerobic conditions, sulpher smell, "sheen" on to lots of iron flocculate present in water
Stormwater Outfalls: 2

Riparian Zone:

Development: surrounded by I-495 and carpool parking lot
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: ~~Rubis, Cherry, Sumac~~ Prunus serotina, Rubus sp., Rhus sp.
Approximate % shading by woody species: 0%
Steepness of adjacent slopes: 25% left and 8% right

Notes: ~~R2UB1-2, Flags W40PG-1A thru 9A and W40PG-1B thru 9B~~
Photos 1267 - 1270
feature width modified

12FF: Same Datasheet, Boundary Modified - RL 4/13/18

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I495/I-270 Managed Lanes Study City/County: PG Sampling Date: 4/13/18

Applicant/Owner: SHA State: MD Sampling Point: 12FF WET

Investigator(s): ~~KAH, RAS~~ MPS/RL Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): ~~LRR S MLRA 149A~~ Lat: 39.021844 Long: -76.947147 Datum: WGS84

Soil Map Unit Name: Elsinboro silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Small isolated emergent wetland located in transmission line ROW
Bisects 20' service road → composed of 2 sections

~~Flags 11-14 / 11-15~~

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photos 1264-1266

12- Cattails Wet

13- Species

12FF - Seem Datasheet, Modified Boundary - RL 4/13/18

12FF

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12FF

Tree Stratum (Plot size: 10x10)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 10x10)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10x10)			
1. Carex sp.	25	Y	*unk
2. Typha latifolia	15	N	OBL
3. Eleocharis tenuis	30	Y	FACW
4. Juncus effusus	15	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85 = Total Cover		

50% of total cover: 42.5 20% of total cover: 17

Woody Vine Stratum (Plot size: 10x10)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (If observed, list morphological adaptations below).

*Carex species was unable to be identified to species level due to season of survey. This species was observed in wetland conditions and within proximity of species with indicator status of OBL and FACW, so assumed to be FAC or wetter.

12FF: Same Datasheet, Modified Boundary - RL 4/13/18

SOIL

Sampling Point: 12FF

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/2	90	10YR 4/4	8	C	M	Sandy Clay	Gravel in profile
			7.5YR 4/6	2	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 6"

Hydric Soil Present? Yes X No ___

Remarks:

Restricted layer at 6 in wetland area partially bordered within ige transmission line Right-of-way. Construction access road within wetland between Flags 11 LL-7 + 11-LL-10, approximately 20' wide

Depleted matrix observed within 6" of soil profile wetland exhibits hydrophytic vegetation and wetland hydrology. The soil profile was sampled within a restrictive soil layer within 12 in of the surface

Wetland Function-Value Evaluation Form

Final

Total area of wetland <0.5AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use maintained/mowed powerline ROW Distance to nearest roadway or other development 150-200'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12FF-wet

Latitude 39.021844 Longitude -76.947147

Prepared by: MKS Date 4/13/18

Wetland Impact:
Type PEM Area <0.5 AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y				
Floodflow Alteration		N			
Fish and Shellfish Habitat		N			
Sediment/Toxicant Retention		N			
Nutrient Removal		N			
Production Export		N			
Sediment/Shoreline Stabilization		N			
Wildlife Habitat		N			
Recreation		N			
Educational/Scientific Value		N			
Uniqueness/Heritage		N			
Visual Quality/Aesthetics		N			
ES Endangered Species Habitat		N			
Other		N			

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 12FFF	**Stream Order:**
Date: 5/3/2019	**State:** MD	**Photos:** 0284 - 0286	
Crew: MRS + AGA	**County:** Prince Georges	**Last Flag Number:** 12FFF - 8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ⊗ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No flow observed during field visit

Hydrologic Connectivity –	Upstream: 12DDD	Downstream: 12EEE	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2-3'	☒ Silts	☒ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 0-0.1'	☐ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Forested / mowed power line ROW
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1				

Notes: Bed & bank are poorly defined in certain areas

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: April Year: 2018												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 12FFFF	**Stream Order:**
Date: 1/11/19	**State:** MD	**Photos:** photos on red ipad	
Crew: MBS/MBS/KJH	**County:** Prince Georges	**Last Flag Number:** 12FFFF – 4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	[X] RPW – Perennial (Flowing year round) (POW)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: feature is an open-water pond water depth ≥1.0'			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: None Downstream: None Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
[ ]	Natural Channel Shape	Width: 35'	[X] Silts	[X] Sands	[X] Muck	RB: forested
[X]	Artificial (man-made)	Depth: 100	[ ] Cobbles	[ ] Gravel	[ ] Other:	
[ ]	Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete		LB: forested
[X]	Other: excavated	stable	Side slope: [X] ≥1:1 [X] 2:1 [ ] 3:1 [ ] ≤4:1			
Notes: man-made ponded area in forest						

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: Jan Year: 2019												
[X]	No rain	[X]	0-0.5											[X]		
[ ]	Light rain	[ ]	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
[ ]	Heavy Rain	[ ]	>1	Severe Drought			Moderate Drought		Normal			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					
[X]	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/debris	[ ]	Observed/predicted flow events
		[X]	Vegetation matted down, bent, or absent	[ ]	Destruction of terrestrial veg.	[ ]	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:
Notes:					

495/I-270 Managed Lanes Study **Waters of the U.S. Data Sheet** Verified MRS 4/5/18

Project: ~~I-495 IRVM – Prince George's County~~		**Feature ID:** ~~W49pg~~ 12G	**Stream Order:**
Date: ~~4/24/15~~ 4/5/18	**State:** MD	**Photos:** ~~3025-3028~~ 1135-1134	
Crew: ~~MBS/MBS~~ MRS/RL	**County:** PG	**Last Flag Number:** ~~W49PG3a&b~~ N/A	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flow in steep but small channel, likely dry in summer

Hydrologic Connectivity –	Upstream: None	Downstream: ~~W45PG~~ 12H	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: <6"	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate	Side slope: ☐ ≥1:1 ☑ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: March	Year: ~~2015~~ 2018
◉ No rain	⊗ 0-0.5	○ ○ ○ ○ ○ ⊗ ○ ◉ ○ ○ ○ ○ ○		
○ Light rain	◉ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6		
○ Heavy Rain	○ >1	Severe Drought / Moderate Drought / Normal / 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			
☑ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified MRS 4/13/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delinlation Manual)

I-495/270 Managed Lanes Study

Project / Site :	~~Capital Beltway~~	Date :	~~8/6/04~~ 4/13/18
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KJG~~ MRS/ICL	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	~~PSS1B~~ PFO
Is the area a potential Problem Area?	No	Transect ID :	~~W30~~ 11-GG
(If needed, explain below.)		Plot ID :	~~TP-31~~ 1266

~~MH 5-12-2015~~

Explanation:

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Vernonia noveboracensis*	S	FACW+	9		
2 *Fraxinus pennsylvanica*	S	FACW	10		
3 *Acer rubrum*	S	FAC	11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-)
100%

feature is a basin => old excavation pit??

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	√ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water 3 (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
	___ Oxidized root channels in Upper 12 Inches
Depth to Free Water in Pit: 0 (in.)	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 0 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

4/13/18 => Photos 1267-1270

verified MRS 4/13/18

12 GG

Soils

Map unit name (Series and Phase): Codorus silt loam
Drainage class: moderately well drained
Taxonomy (Subgroup): Aquic Cumulic Haplorthents
Field observations confirm map type? No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-3		2.6Y3/1	10YR4/6	common/distinct	Sandy Clay Loam
3-6		2.5Y4/2	7.5YR4/6	many/prominent	Sandy Clay Loam
6		Bedrock			

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- √ Gleyed or Low-Chroma Soils
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Bedrock stopped sample at 6'

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland <0.5Ac Human made? _____ Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest, powerline ROW (mowed) Distance to nearest roadway or other development 75-100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12GG - WET

Latitude 39.021672 Longitude -76.947085

Prepared by: MRS Date 4/13/18

Wetland Impact:
Type PFO Area <0.3Ac

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				feature holds surface water for infiltration
Floodflow Alteration		✓			feature not subject to inundation from stream feature 12HH
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 5/7/18

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM – Prince George's County~~ 495/270 Managed Lanes Study		**Feature ID:** ~~11-BB~~ 12 GGG	**Stream Order:**
Date: ~~04/29/15~~ 5/7/18	**State:** MD	**Photos:** ~~3158-3160~~ 2703-2704	
Crew: ~~MRS/MBS~~ MRS/SJF	**County:** PG	**Last Flag Number:** not flagged	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: bed and bank but no water observed. Poor development of hydromorphic channel features			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: none	Downstream: ~~W44PG~~ 12 JJJ	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	☑ Silts	☑ Sands	☑ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 6"	☐ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~February~~ April Year: ~~2015~~ 2018													
◉ No rain	~~○~~ 0-0.5	○	○	○	○	○	~~○~~	○	◉	○	○	○	○	○	
○ Light rain	~~◉~~ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's County Sampling Date: 5/8/19

Applicant/Owner: MDOT SHA State: MD Sampling Point: 12GGGG-WET

Investigator(s): RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 10-15

Subregion (LRR or MLRA): LRR S MRLA 149A Lat: 39.019991 Long: -76.962146 Datum: NAD83

Soil Map Unit Name: Sassafras and Croom soils (SOD) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

12GGGG is a forested wetland located north of MD 495 and south of 12JJJJ. Wetland plot did not contain a lot of trees, the classification was based on total canopy cover.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.25"	
Water Table Present?	Yes ✓	No _____	Depth (inches): 2"	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"	**Wetland Hydrology Present?** Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

12GGGG receives hydrology from runoff from adjacent uplands and a high water table.

Flags: 12GGGG (1-5)

Photo: 12GGGG-WET_West

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 12GGGG-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	25	yes	FAC
2.			
3.			
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Sapling Stratum (Plot size: 30 ft)			
1. *Liquidambar styraciflua*	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. *Liquidambar styraciflua*	15	yes	FAC
2. *Smilax rotundifolia*	10	yes	FAC
3. *Grass sp.*	5	yes	NA
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12GGGG-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Sandy loam	Saturated
3-8	10YR 4/2	100					Sandy clay	Saturated with gravel
8-14	2.5Y 7/2	95	10YR 5/6	5	C	M	Sandy clay	Saturated with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 14"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Final

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 145 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12GGGG

Latitude 39.019991 Longitude -76.962146

Prepared by: RS Date 5/24/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 4/5/18

Stream Features
Field Sheet

Date: ~~8/24/04~~ 4/5/18 Project Site: ~~Capital Beltway~~ 495/I-270 Managed Lanes Study Wetland #: ~~45~~ W45PG 12H

Observer(s): ~~BJG, BMS, KCG~~ MRS/RL ~~MRS 4/10/15~~

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____

Gradient: 2%

Approximate Drainage Basin: _____

feature flows into Paint Branch (12H)

Morphology:

Avg. Channel Width ~~5'~~ 5'-8' Depth 2' Avg. Water Depth 5"

Has stream morphometry been altered? yes Describe type and degree:
culvert, some concrete portions

Habitat and Pollutants:

Substrate (predominant type (s)): gravel/cobble, bedrock on lower portion

Habitat Complexity (Characterize) moderate- clear riffles, low silt, pools

Bank Erosion: Severe _____ Moderate _____ Minor √

Describe: undercutting

Silt Deposition: minor

Pollutants (observation / potential sources): some iron flocculation, sheen on water

Stormwater Outfalls: 2

Riparian Zone:

Development: I-495 to right, open field / forested to the left

Riparian vegetation: Forest √ Shrubs √ Herbs √

Dominant Species: ~~Green ash, Sweet gum~~ Fraxinus pennsylvanica, Liquid ambar styraciflua

Approximate % shading by woody species: 55%

Steepness of adjacent slopes: 1%

Notes: ~~R2UB1, Flags W45PG-1 thru 102~~ Photos 1135-1137

Verified - RL, MRS 4/13/18

Waters of the U.S. Data Sheet

Project: ~~I-495/RVM - Prince George's County~~ I-495/I-270 Managed Lanes		**Feature ID:** ~~11-FF~~ 12HH	**Stream Order:**
Date: ~~5/12/15~~ 4/13/18	**State:** MD	**Photos:** ~~182~~ 1271-1272 on 4/13/18	
Crew: ~~MF KH~~ MRS/RL	**County:** PG	**Last Flag Number:** ~~Not Flagged~~ previously surveyed	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intermittent channel ~~11-EE~~ 12Y and wetland ~~11-GG~~ 12GG feed ~~FF~~ 12HH			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: ~~11-EE &~~ 12Y	Downstream: Paint Branch (12JJ)	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	✓ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	~~Moderate stability~~	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Deeply incised banks					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php					Month: ~~April~~ March			Year: ~~2015~~ 2018				
◉	No rain	◉	0-0.5	○	○	○	○	○	⊗		○	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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					
✓	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/debris	✓	Observed/predicted flow events
		☐	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☐	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:
Notes:					

Waters of the U.S. Data Sheet Verified MRS 5/7/18

Project: ~~I-495 IRVM - Prince George's COunty~~ I95-270 Managed Lanes Study		**Feature ID:** ~~11-CC~~ 12HHH	**Stream Order:**
Date: ~~4/29/15~~ 5/7/18	**State:** MD	**Photos:** ~~W44PG-3186~~ 2705-2706	
Crew: ~~MRS/MBS~~ MRS/SJF	**County:** PG	**Last Flag Number:** not flagged	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: no running water but do have standing water

Hydrologic Connectivity –	Upstream: N/A	Downstream: ~~W44-PG~~ 12JJJ	Adjacent/Abutting: ~~11BB~~ 12GGG

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-4'	✓ Silts	✓ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	~~Stable~~ moderate erosion	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													
		Month: ~~February~~ April								Year: ~~2015~~ 2018					
◉ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	◉	○	○	○	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study	**Feature ID:** 12HHHH	**Stream Order:** 1st
Date: 5/24/19 **State:** Maryland	**Photos:** Upstream, downstream	
Crew: RS **County:** Prince George's	**Last Flag Number:** 12HHHH-010A/B	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at the time of the site visit. Approx water depth 2"			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 12IIII	Downstream: None	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3'	☑ Silts	☑ Sands	☑ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Drains from wetland and dissipates into roadside swale along MD 495.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: April	Year: 2019	
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

I-495/I-270 Managed Lane Study **Waters of the U.S. Data Sheet** Verified MRS 4/5/18

Project: ~~I-495 IRVM - Prince George's County~~		**Feature ID:** ~~11-V~~ 12-I	**Stream Order:**
Date: ~~4/21/15~~ 4/5/18	**State:** MD	**Photos:** ~~3044-3047~~ 1138-1140	
Crew: ~~MRS/MBS~~ MRS/RL	**County:** PG	**Last Flag Number:** ~~11-V-3a&b~~ N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Well defined but small channel, flowing at time of field visit

Hydrologic Connectivity –	Upstream: None	Downstream: ~~W45pg~~ 12H	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 12-16"	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: <6"	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Feature initiates at head cut below sheetflow off roadway

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: March	Year: ~~2015~~ 2018
● No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	◉	○	○	○	○	○		
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified - RL, MRS 4/13/18

Stream Features
Field Sheet

4/13/18 495/I-270 managed lanes study

Date: ~~8/4/04~~ ~~Project Site: Capital Beltway~~ Wetland # : ~~30~~ W30PG 12II

Observer(s): ~~BJG, BMS, KCG~~ MRS/RL MRS - 4/15/15

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____

Gradient: 2%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 30' Depth 4' Avg. Water Depth 8"

Has stream morphometry been altered? yes Describe type and degree:
moderate, culvert in channel

Habitat and Pollutants:

Substrate (predominant type (s)): gravel/cobble

Habitat Complexity (Characterize) low

Bank Erosion: Severe _____ Moderate √ Minor _____

Describe: erosion on bottom of exposed roots

Silt Deposition: ~~none~~ Yes, some sand/gravel bars

Pollutants (observation / potential sources): _____

Stormwater Outfalls: 2

Riparian Zone:

Development: _____

Riparian vegetation: Forest √ Shrubs √ Herbs _____

Dominant Species: Maple, Tulip poplar, Sycamore
Acer sp., Liriodendron tulipifera, Platanus occidentalis

Approximate % shading by woody species: 85%

Steepness of adjacent slopes: 2%

Notes: ~~R2UB1, Flags W30PG-6 thru 32, Paint Branch~~

Photos: 1273-1274, 251-252 (5/2/18)
260-283 (10/18/18)

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 12III	**Stream Order:**
Date: 5/7/18	**State:** MD	**Photos:** 2707-2716	
Crew: MRS / SJF	**County:** Prince George's	**Last Flag Number:** not flagged - GPSed centerline	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Pooled/standing water in most of the upper 4/5th of channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: 12JJJ	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3-6'		✓ Silts	✓ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 0'-6"		✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	✓ Concrete ← rubble		LB: forest
☐ Other:	stable to moderate erosion		Side slope: ☒ ≥1:1 ☑ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018
○ No rain	✓ 0-0.5	○ -6 ○ -5 ○ -4 Severe Drought; ○ -3 ○ -2 Moderate Drought; ○ -1 ○ 0 ✓ 1 Normal; ○ 2 ○ 3 Moderately Wet; ○ 4 ○ 5 ○ 6 Severely Wet		
○ Light rain	○ 0.5-1			
○ Heavy Rain	○ >1			

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's County Sampling Date: 5/8/19

Applicant/Owner: MDOT SHA State: MD Sampling Point: 12IIII-WET

Investigator(s): RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 10-15

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.020029 Long: -76.961615 Datum: NAD83

Soil Map Unit Name: Sassafras and Croom soils (SOD) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

12IIII is a forested wetland is located east of 12GGGG and 12JJJJ and drains into 12HHHH.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.25"
Water Table Present?	Yes ✓	No _____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

12IIII receives hydrology from runoff from adjacent uplands.

Flags: 12IIII (1-8)

Photo: 12IIII-WET_West

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 12IIII-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Nyssa sylvatica*	30	yes	FAC
2. *Acer rubrum*	20	yes	FAC
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling Stratum (Plot size: 30 ft)			
1. *Nyssa sylvatica*	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. *Microstegium vimineum*	50	yes	FAC
2. *Smilax rotundifolia*	15	yes	FAC
3. *Nyssa sylvatica*	10	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12IIII-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Silt loam	Saturated
3-6	10YR 4/2	100					Sandy clay	Saturated
6-20	2.5Y 7/2	80	10YR 6/6	20	C	M	Sandy clay	Saturated with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 125 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12IIII

Latitude 39.020029 Longitude -76.961615

Prepared by: RS Date 5/24/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 4/5/18

all edits by MRS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

4/5/18

Project/Site: ~~I-495 IRVM - Prince George's County~~ 495/I-270 Managed Lane study City/County: PG Sampling Date: ~~4/21/15~~

Applicant/Owner: SHA State: MD Sampling Point: ~~11-U-Wet~~ 12J-wet

Investigator(s): ~~MRS/MBS~~ MRS/RL Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): MLRA 149A Lat: 39.019201° Long: -76.954401 Datum: WGS 84

Soil Map Unit Name: Woodstown sandy loam, 0 to 2% slopes, Northern Coastal Plain NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

wetland consists of two unconnected but very similar wetland cells located on either side of WUS 11T

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 1"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

photos 3-38-3043

Verified MRS 4/15/19 12J-Wet

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: ~~11-U-Wet~~

Tree Stratum (Plot size: 30' radius)		Absolute % Cover	Dominant Species?	Indicator Status
1. Red maple	Acer rubrum	50	Y	FAC
2. Sweetgum	Liquidambar styraciflua	30	Y	FAC
3. Black gum	Nyssa sylvatica	20	Y	FAC
4.				
5.				
6.				
7.				
8.				
		100	= Total Cover	
50% of total cover: 50.0		20% of total cover: 20.0		

Sapling/Shrub Stratum (Plot size: 30' radius)				
1. Black gum	Nyssa sylvatica	10	Y	FAC
2. Sweetgum	Liquidambar styraciflua	20	Y	FAC
3. Sweetbay magnolia	Magnolia virginiana	10	Y	FACW
4. High bush blueberry	Vaccinium corymbosum	10	Y	FACW
5.				
6.				
7.				
8.				
		50	= Total Cover	
50% of total cover: 25.0		20% of total cover: 10.0		

Herb Stratum (Plot size: 10' radius)				
1. Carex sp.		5	Y	UNK
2. Sweetgum	Liquidambar styraciflua	5	Y	FAC
3. Partridge berry	Mitchella repens	5	Y	FACU
4. Lonicera japonica		5	Y	FACU
5. Arrowwood	Viburnum dentatum	5	Y	FAC
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		25	= Total Cover	
50% of total cover: 12.5		20% of total cover: 5.0		

Woody Vine Stratum (Plot size: 10' radius)				
1. None				
2.				
3.				
4.				
5.				
		0	= Total Cover	
50% of total cover: 0.0		20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 64% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

verified MRS 4/5/18

12 J-wet

SOIL

Sampling Point: ~~11-U-Wet~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/2	100					Organic rich loam	
2-15	7.5YR 4/1	80	7.5 YR 3/3	20	C	M	Fine Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.1AC Human made?_____ Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest roadway Distance to nearest roadway or other development 60'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system?_____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12J-Wet

Latitude 39.019201° Longitude -76.954401°

Prepared by: MRS Date 4/5/18

Wetland Impact:
Type PFO Area 0.1AC

Evaluation based on:
Office_____ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				Minor functionality → wetland is small depressions that may provide minor groundwater recharge.
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes City/County: Prince Georges Sampling Date: 4/13/18

Applicant/Owner: SHA State: MD Sampling Point: DD-WET

Investigator(s): RL, MPS Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR or MLRA): MLRA 149A Lat: 39.021958 Long: -76.943988 Datum: WGS 84

Soil Map Unit Name: Manor loam, 15 to 25 percent slopes, Urban land-Manor complex, highway, 0 to 65 percent slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

Area was previously ponded due to beaver activity. Dam has been removed and area is an active floodplain. Photos 1277 - 1279

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [X] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [X]	Depth (inches): 0
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 3

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: PJ WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 10x10)			
1. Mikania scandens vimineum	50	Y	FAC
2. Typha latifolia	15	N	OBL
3. Persicaria perfoliata	40	Y	FAC
4. Impatiens capensis	10	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
50% of total cover: 57	20% of total cover: 23		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12SS-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	90	5YR 3/4	10	C	M	Sandy Loam	
5-10	10YR 4/3	85	7.5YR 5/8	15	C	M	Sandy Loam	
10-18	2.5Y 4/2	85	10YR 2/1	15	D	M	Sandy Loam	Dark depletions

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.8 AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Roadway + forest Distance to nearest roadway or other development < 100 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? floodplain

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12JJ - wet

Latitude 39 021958 Longitude -74.943988

Prepared by: MES Date 4/13/18

Wetland Impact:
Type PEM Area 0.8 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		N			
Floodflow Alteration	Y				
Fish and Shellfish Habitat		N			
Sediment/Toxicant Retention	Y				
Nutrient Removal	Y				
Production Export	Y				
Sediment/Shoreline Stabilization	Y				
Wildlife Habitat	Y				
Recreation		N			
Educational/Scientific Value		N			
Uniqueness/Heritage		N			
Visual Quality/Aesthetics		N			
ES Endangered Species Habitat		N			
Other		N			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 12JJT	**Stream Order:**
Date: 5/7/18	**State:** MD	**Photos:** 2717 - 2725	
Crew: MRS/STF	**County:** Prince George's	**Last Flag Number:** not flagged - GPS'ed	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: large, well defined channel, observed flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 12SWM-8	Downstream: 12H	Adjacent/Abutting: 12III

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 8-12'	✓ Silts	✓ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 0.1-1.0'	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: heavily eroded	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: May Year: 2018												
✓ No rain	✓ 0-0.5	○	○	○	○	○	○	○	✓	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's County Sampling Date: 5/8/19

Applicant/Owner: MDOT SHA State: MD Sampling Point: 12JJJJ-WET

Investigator(s): RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 10-15

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.020089 Long: -76.962238 Datum: NAD83

Soil Map Unit Name: Sassafras and Croom soils (SOD) NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

12JJJJ is located north of 12GGGG. It is located within a forest, but there were not a large tree presence within the wetland plot.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 0.25"	
Water Table Present?	Yes ✓	No _____	Depth (inches): 0"	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"	**Wetland Hydrology Present?** Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

12JJJJ receives hydrology from groundwater and runoff from adjacent uplands.

Flags: 12JJJJ (1-9)

Photos: 12JJJJ-WET_West

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 12JJJJ-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liquidambar styraciflua*	20	yes	FAC
2. *Nyssa sylvatica*	20	yes	FAC
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling Stratum (Plot size: 30 ft)			
1. *Liquidambar styraciflua*	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 30 ft)			
1. *Ilex opaca*	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 30 ft)			
1. *Microstegium vimineum*	20	yes	FAC
2. *Carex lurida*	15	yes	OBL
3. *Smilax rotundifolia*	10	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12JJJJ-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Silty clay	Saturated
2-6	10YR 4/2	90	10YR 4/6	10	C	M	Sandy clay	Saturated with gravel
6-14	2.5Y 5/2	75	2.5Y 6/6	20	C	M	Sandy clay	Saturated with gravel
			10YR 3/2	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 14"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Final

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 165 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12JJJJ

Latitude 39.020089 Longitude -76.962238

Prepared by: RS Date 5/24/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	N			
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

495/I-270 Managed Lanes Study **Waters of the U.S. Data Sheet** Verified MRS 4/5/18

Project: ~~I-495 IRVM - Prince George's County~~		**Feature ID:** ~~11-T~~ 12K	**Stream Order:**
Date: ~~4/21/15~~ 4/5/18	**State:** MD	**Photos:** ~~3029-3035~~ 1221-1222	
Crew: ~~MRS/MBS~~ MRS/RL	**County:** PG	**Last Flag Number:** ~~11-t-5a&b~~ not reflagged	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Observed abundant flow and fish in stream			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~W36pg~~ 12KKK, 12NNN	Downstream: ~~W45pg~~ 12H	Adjacent/Abutting: ~~Maybe!~~ 12BB

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 2-6'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: <10"	☑ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	Moderate	Side slope: ☑ ≥1:1 ☑ 2:1 ☑ 3:1 ☐ ≤4:1			LB: Forest
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: March	Year: ~~2015~~ 2018
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	◉	○	○	○	○	○		
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

~~4-13-2018~~

Verified - RL, MRS 4/13/18

Stream Features
Field Sheet

Date: 4/13/18 ~~8/4/04~~ Project Site: I-495/I-270 Managed Lanes ~~Capital Beltway~~ Wetland #: 29 ~~11-P-WLS~~ 12KK

Observer(s): RL, MRS ~~BJG, BMS, KCG~~ RK+K - MH, NLB

Stream Flow:

Perennial: \ Intermittent _____ Ephemeral _____

Gradient: 1%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 5' Depth 2' Avg. Water Depth 6"

Has stream morphometry been altered? no Describe type and degree:

Habitat and Pollutants:

Substrate (predominant type (s)): gravel

Habitat Complexity (Characterize) moderate- few deep pools, riffle/pool sequence

Bank Erosion: Severe _____ Moderate _____ Minor \

Describe: undercut banks

Silt Deposition: minor

Pollutants (observation / potential sources): none

Stormwater Outfalls: 0

Riparian Zone:

Development: none

Riparian vegetation: Forest \ Shrubs \ Herbs _____

Dominant Species: Cherry, Box elder, Spicebush

Prunus sp., Acer negundo, Lindera benzoin

Approximate % shading by woody species: 90%

Steepness of adjacent slopes: 1-5%

Notes: ~~R2UB1, Flags W29PG-20B thru 41 W29PG-24A thru 43A~~ Photos 1275-1276

2004 Large concrete culvert provides flow to this portion of channel. Channel more natural (not concrete-lined) Observed beaver activity that created backflow/ponded area. Hung additional flags to capture increased open water area (Flags 11-P-1 → 11-P-7).

2018 → Beaver dam has been cleared, ponded area now a wetland (12KK)

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane study		**Feature ID:** 12KKK	**Stream Order:**
Date: 5/8/17	**State:** MD	**Photos:** 1576-1579, 1583, 1584	
Crew: MRS/RL	**County:** Prince George's Co.	**Last Flag Number:** Not flagged. GPS'ed centerline	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year) Feature is flowing downstream of 12LLL	⊗ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: 3 contains standing water and surface is at grade with saturated wetland surface near 12LLL.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: wetland 12LLL	Adjacent/Abutting: wetland 12LLL

Feature Description: ***(check all that apply)*** 12LLL is mine w/ 12KKK. 12KKK continues downstream of 12LLL

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 2-3'	☒ Silts	☒ Sands	☐ Muck	RB: forested
☐ Artificial (man-made)	Depth: 0-4"	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: forested
☐ Other:	stable	Side slope: ☒ ≥1:1 ☐ 2:1 ☒ 3:1 ☒ ≤4:1			
Notes: Channel incised 1.5-2.0 where it transitions from ephemeral → intermittent					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: May Year: 2018												
⊗	No rain	☑	0-0.5	○	○	○	○	○	○	○	☑	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study	**Feature ID:** 12KKKK	**Stream Order:** 1st
Date: 5/8/19	**State:** Maryland	**Photos:** Upstream, downstream
Crew: RS	**County:** Prince George's	**Last Flag Number:** 12KKKK-003A/B

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at the time of the site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study area	Downstream: 12D	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3'	☐ Silts	☑ Sands	☑ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 1'	☐ Cobbles	☐ Gravel	☑ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Rip rap	LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: April	Year: 2019		
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

VERIFIED

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM - Prince George's County~~ I-495/I-270 Managed Lane Study		**Feature ID:** ~~11-R~~ 12 LL **Stream Order:**
Date: ~~4/13/2015~~ 4/17/18	**State:** MD	**Photos:** ~~148~~ 1280 + 1281
Crew: ~~MH/NLB~~ MRS + AGA	**County:** PG	**Last Flag Number:** ~~11-R-4A&B~~ N/A

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ◉ Non-RPW with abutting wetland W28PG ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No flowing water, receives water from precipitation events observed predicted flow on 4/17/18

Hydrologic Connectivity –	Upstream: None	Downstream: ~~W28PG~~ None	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 1'	✓ Silts	✓ Sands	☐ Muck	RB: Forest & Paved Road
☐ Artificial (man-made)	Depth: Varies, 1-5"	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			

Notes: * heavy rain on 4/16/18, observed predicted flow event 4/17/18 +

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~February~~ March Year: ~~2015~~ 2018												
◉ No rain	○ 0-0.5	○	○	○	○	○	⊗	○	⊗ ◉	○	○	○	○	○
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Verified - RL & MRS 5/8/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

I-495/I-270 Managed Lanes 5/8/18

Project / Site :	~~Capital Beltway~~	Date :	~~8/26/04~~
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ RL & MRS	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PFO1E
Is the area a potential Problem Area?	No	Transect ID :	~~w56~~
(If needed, explain below.)		Plot ID :	~~FP-53~~
Explanation:			

12LLL
~~11G~~
MRS - 4/9/15

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Acer rubrum*	T	FAC	9		
2 *Magnolia virginiana*	S	FACW+	10		
3 *Vaccinium corymbosum*	S	FACW-	11		
4 *Osmunda cinnamomea*	H	FACW	12		
5 *Osmunda regalis*	H	OBL	13		
6 *Nyssa sylvatica*	H	FAC	14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-)
100%

Remarks: Visual estimation of dominance by aerial cover Photos 1580-1582

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water n/a (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: 5 (in.)	___ Oxidized root channels in Upper 12 Inches
	√ Water-Stained Leaves
Depth to Saturated Soil 1 (in.)	___ Local Soil Survey Data
	___ Fac-Neutral Test
	___ Other (Explain in Remarks)
Remarks:	

Verified - RL & MRS 5/8/18

12LLL

HG

Soils

Map unit name (Series and Phase): Fallsington sandy loam
Taxonomy (Subgroup): Typic ochraquults
Drainage class: Poorly drained
Field observations confirm map type? Yes

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-1		10YR3/2			Silty Clay Loam
1-5		2.5Y3/1	10YR3/2	few/distinct	Silty Clay Loam
5-9		10YR3/2	10YR3/6	few/faint	Sandy Clay Loam
9+		10YR3/2	10YR4/6	few/faint	Sandy Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks: ~~Flags 1A thru 35A and 1B thru 33B, Test plot near flag 8B~~

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.07AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development 44 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12LL

Latitude 35.022777 Longitude -76.957312

Prepared by: MRS Date 5/8/18

Wetland Impact:
Type PFO Area 0.07AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				minor GW discharge observed
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

* Refer to backup list of numbered considerations.

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 12LLLL	**Stream Order:** 2nd
Date: 5/8/19	**State:** Maryland	**Photos:** Upstream, Downstream	
Crew: RS	**County:** Prince George's	**Last Flag Number:** 12LLLL-006A/B	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 12NNNN	Downstream: 12D	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1'	☑ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April	Year: 2019
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☑ Destruction of terrestrial veg.	☐ 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:
Notes:		

495/I270 managed Lanes Study **Waters of the U.S. Data Sheet** Verified MRS 4/5/18

Project: I-495 IRVM - Prince George's County		**Feature ID:** ~~11-S~~ 12M	**Stream Order:**
Date: ~~4/15/15~~ 4/5/18	**State:** MD	**Photos:** ~~3010-3013~~ 1147-1149	
Crew: ~~MRS/MBS~~ MRS/RL	**County:** PG	**Last Flag Number:** ~~3a&b~~ N/A	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Observed flow but small in volume			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 12" CMP upstream	Downstream: ~~W45pg~~ 12H	Adjacent/Abutting: No

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1-3"	☐ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Moderately eroded	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Straight outfall from swm pipe					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: March	Year: ~~2015~~ 2018
◉ No rain	◉ 0-0.5	○	○	○	○	○	◉	○	◉	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 12 MM	**Stream Order:**
Date: 4/17/2018	**State:** MD	**Photos:** 1298, 1299, thru 1304	
Crew: MRS + AGA	**County:** PG	**Last Flag Number:** using existing polygon in GIS prev. W58PG	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊘ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Incised roadside ditch intercepting ground water

Hydrologic Connectivity –	Upstream: none	Downstream: Wetland 12 NN	Adjacent/Abutting: Wetland 12 QQ + waters 12 PP

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'		☒ Silts	☒ Sands	☐ Muck	RB: Forested
☒ Artificial (man-made)	Depth: 0-0.5'		☐ Cobbles	☒ Gravel	☒ Other: concrete chunks	
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderately Stable		☐ Bedrock	☐ Concrete		LB: Forested + roadway (495)
☐ Other:			Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: March Year: 2018												
⊘ No rain	○ 0-0.5	○	○	○	○	○	⊘	○	○	○	○	○	○	○
○ Light rain	⊘ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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					
⊘ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes		**Feature ID:** 12MMM	**Stream Order:**
Date: 5/8/18	**State:** MD	**Photos:** 1590-1592	
Crew: RL & MRS	**County:** PG	**Last Flag Number:** 12MMM-4	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
◯ TNW (Subject to ebb and flow)	◯ TNW – Perennial (Flowing year round) ◯ RPW – Perennial (Flowing year round)	◯ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands ◯ Non-RPW erosional feature ◯ Non-RPW with abutting wetland ◯ Non-RPW with adjacent wetland ◯ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Standing water in channel, partially dry on DS side

Hydrologic Connectivity –	Upstream: NA	Downstream: 12KKK	Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1-2'		☒ Silts	☒ Sands	☐ Muck	RB: Forested	
☐ Artificial (man-made)	Depth: 1"		☐ Cobbles	☐ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderately stable		☐ Bedrock	☒ Concrete		LB: Forested	
☐ Other:			Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: May Year: 2018												
⊗ No rain	⊗ 0-0.5	◯	◯	◯	◯	◯	◯	◯	⊘	◯	◯	◯	◯	◯
◯ Light rain	◯ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
◯ Heavy Rain	◯ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 12MMMM	**Stream Order:** 1st
Date: 5/8/19	**State:** Maryland	**Photos:** Upstream, downstream	
Crew: RS	**County:** Prince George's	**Last Flag Number:** 12MMMM-002A/B	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 12NNNN	Downstream: 12LLLL	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 2'		☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 8"		☐ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable		Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php										Month: April	Year: 2019		
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☑ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified mrs 4/5/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

495/I270 Manage Lane Study

4/5/18

Project / Site :	~~Capital Beltway~~	Date :	~~8/25/04~~
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ mrs/RL	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PFO1B
Is the area a potential Problem Area?	No	Transect ID :	~~w50~~
(If needed, explain below.)		Plot ID :	~~TP-50~~
Explanation:			

12N-Wet
~~W50PG~~
~~mrs 4/5/18~~

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Symplocarpus foetidus*	H	OBL	9		
2 *Osmunda cinnamomea*	H	FACW	10		
3 *Microstegium viminea* vimineum	H	FAC	11		
4 *Carex intumescens*	H	FACW	12		
5 *Lycopus americanus*	H	OBL	13		
6 *Parthenocissus quinquefolia*	V	FACU	14		
7 *Acer saccharinum*	S	FACW	15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-)
86%

Photos 1150 - 1152

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water n/a (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
	___ Oxidized root channels in Upper 12 Inches
Depth to Free Water in Pit: 14 (in.)	√ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 0 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)
Remarks:	

Verified
MMS
4/5/18

12 N - wet

~~W50PG~~

Soils

Map unit name
(Series and Phase): Fallsington sandy loam
Taxonomy (Subgroup): Typic Ochraquults
Drainage class Poorly drained
Field observations confirm map type? Yes

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-2		10YR3/2			Silty Clay Loam
2-6		10YR4/1	10YR6/3	few/faint	Silt Loam
6-10		2.5Y6/2	10YR4/1, 10YR5/8	few/faint, common/faint	Silty Clay
10-14		10YR4/1	7.5YR4/6	common/distinct	Silty Clay
14+		10YR3/1			Sandy Clay Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: 12+ oxidized rhizospheres

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks: Isolated wetland, ~~Flags W50PG-1 thru 12~~, Test plot located in the center of wetland

Wetland Function-Value Evaluation Form

Total area of wetland <0.5 AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest + roadway Distance to nearest roadway or other development <150 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12N-Wet

Latitude 39.018748 Longitude -76.954585

Prepared by: MRS Date 4/5/18

Wetland Impact:
Type PFO Area <0.5 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			No	small depression in woods → not inundated by flood flows from nearby streams.
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified 4/17/18
MRS/AGA

No Opt. for ~~12NN~~

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

495/I-270 Managed Lanes Study 4/17/18

Project/Site: ~~I-495 Inner PG County~~ City/County: PG Sampling Date: ~~7-2015~~

Applicant/Owner: SHA State: MD Sampling Point: ~~TP A WET~~

Investigator(s): ~~MH, KH~~ MRS/AGA Section, Township, Range: 12NN-Wet

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR or MLRA): LRR S Lat: 39.020186 Long: -76.935086 Datum: WGS 84

Soil Map Unit Name: Codorus and Hatboro soils (CF) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	Is the Sampled Area within a Wetland? Yes X No _____
Hydric Soil Present?	Yes — No —	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Forested wetland that abuts ~~WS 8~~ 12NN at ROW fence. ~~wetland extended outside of Study area, but~~ continues more than 25' from ROW fence No flags hung

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo ~~# 77~~

1305 + 1306 → original polygon shape

1307 + 1309 → expanded area

12NN-wet

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: ~~10-A-b2-7~~

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Red maple - Acer rubrum	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Sapling/Shrub Stratum (Plot size: 20' radius)			
1. multiflora rose - Rosa multiflora	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 20' radius)			
1. Typha latifolia	30	Y	OBL
2. Carex sp	20	Y	–
3. Phalaris arundinacea	20	Y	OBL
4.			
5. Skunk cabbage	T	N	OBL
6. Symplocarpus foetidus			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 20' radius)			
1. Smilax rotundifolia	10	Y	FAC
2. Toxicodendron radicans	10	Y	FAC
3.			
4.			
5.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Blueberry, spicebush, & skunk cabbage found in wetland as well

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (If observed, list morphological adaptations below).

dead standing trees observed

Carex sp observed within wetland could not be identified this time of year. Carex species are usually FACW or OBL in this region

12NN-wet

SOIL

Sampling Point: ~~10A-128I~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

~~No soils sampled due to access, wetland area outside of study area/ROW Corridor~~

~~W.S.S.P.G. adults & Clones through wetland~~

only non-invasive access to MNCPPL-PG property at time of the delineation, therefore no soil pit was sampled because digging was not allowed.

↳ must return to sample soils

Wetland Function-Value Evaluation Form

Total area of wetland >1.0Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? yes

Adjacent land use Roadway + Forest Distance to nearest roadway or other development <50ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? lower

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12NN-wet

Latitude 39.019556 Longitude -76.93454

Prepared by: MRS Date 4/17/2018

Wetland Impact:
Type PFO Area >1.0Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		2, 7, 9, 13,		
Floodflow Alteration	✓		4, 5, 6, 7, 8, 9, 10, 11, 13, 15	✓	
Fish and Shellfish Habitat		✓	4, 7, 14,		
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 5, 7, 12, 13, 14, 15, 16	✓	
Nutrient Removal	✓		3, 4, 5, 6, 7, 8, 9, 12, 11, 12, 13, 14	✓	
Production Export	✓		1, 2, 4, 5, 7, 8, 9, 13, 14, 14		
Sediment/Shoreline Stabilization		✓	2, 4, 5, 9, 14,		
Wildlife Habitat	✓		5, 6, 7, 8, 9, 11, 13, 14, 15, 17, 19, 21,		
Recreation		✓	1, 5, 12		
Educational/Scientific Value		✓	5, 11,		
Uniqueness/Heritage		✓	9,		
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes		**Feature ID:** 12NNN	**Stream Order:**
Date: 5/3/18	**State:** MD	**Photos:** 1593-1599	
Crew: RL & MPS	**County:** PG	**Last Flag Number:** 12NNN-Co	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
◯ TNW (Subject to ebb and flow)	◯ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	◯ Non-RPW draining uplands
	◯ RPW – Perennial (Flowing year round)		◯ Non-RPW erosional feature
			◯ Non-RPW with abutting wetland
			◯ Non-RPW with adjacent wetland
			◯ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Stream flowing at time of delineation, but likely dries up during the summer

Hydrologic Connectivity –	Upstream: NA	Downstream: 12KKK	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)*** Canverges w/ 12KKK into culvert

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-3'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1-3"	☒ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderately stable	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May Year: 2018
⊗ No rain	⊗ 0-0.5	◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯	
◯ Light rain	◯ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6	
◯ Heavy Rain	◯ >1	Severe Drought / Moderate Drought / Normal / 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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's Sampling Date: 5/8/19

Applicant/Owner: MDOT SHA State: MD Sampling Point: 12NNNN-WET

Investigator(s): RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5-10

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.014466 Long: -76.954749 Datum: NAD83

Soil Map Unit Name: Croom gravelly sandy loam (CrC) NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

12NNNN is a forested wetland located south of 12D. It drains into 12MMMM and 12LLLL.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 2"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

12NNNN receives hydrology from runoff from adjacent uplands.

Flags: 12NNNN (1-11)

Photo: 12NNNN-WET_Northeast

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 12NNNN-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. *Nyssa sylvatica*	50	yes	FAC
2. *Acer rubrum*	20	yes	FAC
3.			
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot size: 30 ft)			
1. *Nyssa sylvatica*	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Shrub Stratum (Plot size: 30 ft)			
1. *Liquidambar styraciflua*	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30 ft)			
1. *Viburnum dentatum*	25	yes	FAC
2. *Smilax rotundifolia*	20	yes	FAC
3. *Liquidambar styraciflua*	15	yes	FAC
4. *Lonciera japonica*	5	no	FACU
5. *Parthenocissus quinquefolia*	5	no	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12NNNN-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	10YR 4/6	5	C	M	Silty clay	Saturated
4-20	10YR 6/1	65	10YR 5/6	30	C	M	Silty clay	Saturated
			10YR 3/2	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.09 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 185 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12NNNN

Latitude 39.014466 Longitude -76.954749

Prepared by: RS Date 5/24/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	Y			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/I270 Managed Lanes		**Feature ID:** 120	**Stream Order:**
Date: 4/5/18	**State:** MD	**Photos:** 1155 - 1156	
Crew: MPS/RL	**County:** Prince Georges	**Last Flag Number:** not flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: standing water, not flowing ditch at foot of roadway embankment

Hydrologic Connectivity –	Upstream: None	Downstream: Waters 124	Adjacent/Abutting: wetland 120

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	☒ Silts	☒ Sands	☒ Muck	RB: forested, then roadway embankment
☒ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: forested
☐ Other:	stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☒ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: March Year: 2018													
☑ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

~~MH, SCY~~
~~4/7/2015~~

VERIFIED

Stream Features
Field Sheet

4/17/2018 I-495/I-270 Managed Lane study 1200

Date: ~~7/30/04~~ Project Site: ~~Capital Beltway~~ Wetland #: ~~26~~ ~~10-D~~ WHS

Observer(s): ~~BJG, BMS, KCG~~ MRS + AGA

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: , 2%
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 30' Depth 3' Avg. Water Depth 7"

Has stream morphometry been altered? yes Describe type and degree:
minor only from culvert under road

Habitat and Pollutants:

Substrate (predominant type (s)): cobble/gravel
Habitat Complexity (Characterize) moderate

Bank Erosion: Severe √ Moderate √ Minor _____
Describe: moderate along straight channel, severe around curve
Silt Deposition: none
Pollutants (observation / potential sources): none

Stormwater Outfalls: 1

Riparian Zone:

Development: Large building to east, woods to south
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: willows, tulip poplar, cherry, sycamore
Salix spp., Liriodendron tulipifera, Prunus sp., Platanus occidentalis
Approximate % shading by woody species: 50%
Steepness of adjacent slopes: 2 and 7%

Notes: ~~R2UB1~~, Little paint branch

photos: 1310-1314, 1315

Bed substrate not stable, likely after large storm on 4/15.

Verified - RL & MRS - 5/8/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

Reviewed by RK+K 4.7.2015

495/270 Manage Lanes

5/8/18

Project / Site :	~~Capital Beltway~~	Date :	~~8/25/04~~
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ RL & MRS	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PEM1B
Is the area a potential Problem Area?	No	Transect ID :	~~w52~~ PG 12C00
(If needed, explain below.)		Plot ID :	~~TP-52~~
Explanation:			

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Impatiens capensis*	H	FACW	9		
2 *Rubus sp.*	H		10		
3 *Carex crinita*	H	OBL	11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Visual estimation of dominance by aerial cover Photos 1604-1605

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	√ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water <1 (in.)	___ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: 6 (in.)	___ Oxidized root channels in Upper 12 Inches
	___ Water-Stained Leaves
Depth to Saturated Soil 0 (in.)	___ Local Soil Survey Data
	___ Fac-Neutral Test
	___ Other (Explain in Remarks)
Remarks:	

Verified - RL 2 YR S - 5/8/18

12,000

Soils

Map unit name (Series and Phase): Codorus silt loam
Taxonomy (Subgroup): Aquic cumulic haplorthents
Drainage class: moderately well drained
Field observations confirm map type? No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-3		10YR3/2	10YR4/8	common/faint	Silty Clay Loam
3-8		2.5Y4/2	10YR6/8	many/distinct	Sandy Clay Loam
8-13		2.5Y4/3	7.5YR5/8	many/prominent	Sandy Clay Loam
10+		5Y4/2	7.5YR4/6	many/prominent	Sandy Clay Loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks: Flags W51PG-1A thru 34A and 1B thru 9B, Test plot near flag 31

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.03 Human made? Yes Is wetland part of a wildlife corridor? NO or a "habitat island"? No

Adjacent land use Roadway + forest Distance to nearest roadway or other development 35 ft.

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12000

Latitude 39.023725 Longitude -76.894066

Prepared by: MRS Date 5/8/18

Wetland Impact:
Type PEM Area 0.03 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				observed GW seepage
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				roadside ditch wetland
Nutrient Removal	✓				roadside ditch filtering runoff
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

* Refer to backup list of numbered considerations.

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's County Sampling Date: 5/8/19

Applicant/Owner: MDOT SHA State: MD Sampling Point: 12OOOO-WET

Investigator(s): RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 8-15

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.014810 Long: -76.954503 Datum: NAD83

Soil Map Unit Name: Glenelg-Wheaton-Urban land complex (GfC) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

12OOOO is a forested wetland located west of the 495 park and ride and east of 12D.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____	
Water Table Present?	Yes ✓	No _____	Depth (inches): 10"	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 4"	**Wetland Hydrology Present?** Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

12OOOO receives hydrology from runoff from adjacent uplands.

Flags: 12OOOO (1-6)

Photo: 12OOOO-WET_East

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 12OOOO-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus alba*	20	yes	FACU
2. *Quercus montana*	10	yes	UPL
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Sapling Stratum (Plot size: 30 ft)			
1. *Acer rubrum*	20	yes	FAC
2. *Liquidambar styraciflua*	20	yes	FAC
3. *Nyssa sylvatica*	20	yes	FAC
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. *Smilax rotundifolia*	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12OOOO-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	90	10YR 4/6	5	C	M	Silt loam	
			10YR 5/2	5	D	M		
4-8	10YR 4/2	85	10YR 5/6	10	C	M	Silty clay	Saturated
			10YR 2/2	5	D	M		
8-12	10YR 5/3	100					Silty clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 12"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Final

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 100 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? NA

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12OOOO

Latitude 39.014810 Longitude -79.954503

Prepared by: RS Date 5/24/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/I 270 Managed Lanes		**Feature ID:** 12P	**Stream Order:**
Date: 4/5/18	**State:** MD	**Photos:** 1157-1159	
Crew: MRS / RL	**County:** Prince George's	**Last Flag Number:** not flagged (previously surveyed)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: shallow standing water, not flowing, low landscape position			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: waters 12H (perennial)	Adjacent/Abutting: wetland 12Q

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☒ Silts	☒ Sands	☒ Muck	RB: forested
☒ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	☐ Gravel	☒ Other: levee	
☐ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☐ Concrete		LB: forested
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☒ ≤4:1			
Notes: man-made ditch					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: March Year: 2018												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☒ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 12PP	**Stream Order:**
Date: 4/17/2018	**State:** MD	**Photos:** 1318 (ephemeral) 1319 - 1322 (intermittent)	
Crew: MRS + AGA	**County:** PG	**Last Flag Number:** 12PP-18 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ☒ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: observed water after heavy storm on 4/15/18

Hydrologic Connectivity – Upstream: runoff from non jurisdictional ditch Downstream: 12NN Adjacent/Abutting: Wetland 12QQ

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1-4'		☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 0-0.1'		☐ Cobbles	☒ Gravel	☒ Other: clay	
☐ Manipulated (man-altered)	Bank Erosion/stability: moderately stable		☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:			Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: water stained leaves adjacent to channel, portion of the channel is ephemeral then transitions to intermittent

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: March Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	☒	○	○	○	○	○	○	○
○ Light rain	☒ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

495/270 Managed Lanes

Waters of the U.S. Data Sheet

Verified by RL 3 MRS 5/15/18

Project: ~~I-495 IRVM – Prince George's County~~		**Feature ID:** ~~W~~ 12PPP	**Stream Order:**
Date: ~~4/7/2015~~ 5/8/18	**State:** MD	**Photos:** ~~138~~ 1608-1610	
Crew: ~~MH/SLY~~ RL 3 MRS	**County:** PG	**Last Flag Number:** ~~11-E-3a, 11-E-3b~~ old flags	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing, possible seep			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Wetland - 12000	Downstream: Waters ~~W~~ 12QQQ	Adjacent/Abutting: Wetland - 12000

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 2"	☐ Cobbles	☐ Gravel	☑ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Rock, riprap	
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			LB: Recently Cleared, Paved Road
Notes: Riprap observed in channel					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: April (~~February~~) Year: 2018 (~~2015~~)
◉ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	⊗ -1 ○ 0 ◉ 1	Normal
		○ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Prince George's County Sampling Date: 5/8/19

Applicant/Owner: MDOT SHA State: MD Sampling Point: 12PPPP-WET

Investigator(s): RS Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 8-15

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.104973 Long: -76.954291 Datum: NAD83

Soil Map Unit Name: Glenelg-Wheaton-Urban land complex (GfC) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

12PPPP is a forested wetland located west of the park and ride and north of 12OOOO.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

12PPPP receives hydrology from runoff from adjacent uplands.

Flags: 12PPPP (1-10)

Photo: 12PPPP-WET_North

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 12PPPP-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	25	yes	FAC
2. *Nyssa sylvatica*	25	yes	FAC
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling Stratum (Plot size: 30 ft)			
1. *Acer rubrum*	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. *Smilax rotundifolia*	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12PPPP-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	80	10YR 4/6	20	C	M	Silty clay	Saturated
5-15	10YR 4/2	65	5YR 6/6	35	C	M	Sandy clay	Saturated
15-20	10YR 6/1	70	5YR 6/6	30	C	M	Sandy clay	Saturated with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Final

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 78 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12PPPP

Latitude 39.104973 Longitude -76.954291

Prepared by: RS Date 5/24/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Verified MRS 4/5/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Delineation Manual)

495/270 Managed Lanes Study

Project / Site :	~~Capital Beltway~~	Date :	~~8/26/04~~ 4/5/18
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ MRS/RL	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PFO1E
Is the area a potential Problem Area?	No	Transect ID :	~~w48~~
(If needed, explain below.)		Plot ID :	~~TP-48~~
Explanation:			

~~w48 PG~~ ← 12Q-wet

~~MRS 4/25/15~~

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Osmunda cinnamomea*	H	FACW	9		
2 *Magnolia virginiana*	T	FACW+	10		
3 ~~Vaccinium sp.~~	S		11		
4 *Lonicera japonica*	V	FAC-	12		
5 *Quercus phellos*	T	FAC+	13		
6 *Pinus virginiana*	T	UPL	14		
7			15		
8			16		

Vaccinium corymbosum

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water n/a (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: n/a (in.)	___ Oxidized root channels in Upper 12 Inches
	___ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 0 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)
Remarks:	

4/5/18 → wetland seems much drier on 4/5/18 compared to verification on 4/25/15

Photos 1160 - 1163

Verified MRS 4/5/18

495/I-270 managed lanes study

MRS/RL

12Q-Wet

~~W48PG~~

Soils

Map unit name (Series and Phase):	Chillium silt loam	Drainage class	well drained
Taxonomy (Subgroup):	Alfic Normudults	Field observations confirm map type?	

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-8		10YR3/1	10YR3/6	many/faint	Silt Loam
8-10		10YR4/1	10YR4/6,10YR6/8	many/faint	Sandy Clay Loam
10+		10YR4/1	7.5YR4/6, 7.5YR5/8	many/distinct	Sandy Clay Loam

Hydric Soil Indicators:

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed on Local Hydric Soils List
√	Reducing Conditions	___	Listed on National Hydric Soils List
√	Gleyed or Low-Chroma Soils	___	Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes		
Wetland Hydrology Present?	Yes	Is this Sampling Point Within a Wetland?	Yes
Hydric Soils Present?	Yes		

Remarks: ~~Tags W48PG 1A thru 26A and 1B thru 30B~~

Wetland Function-Value Evaluation Form

Total area of wetland ≈0.8AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Forest, highway Distance to nearest roadway or other development 60-70'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12Q—Wet

Latitude 39.019188 Longitude -76.955773

Prepared by: MRS Date 4/5/18

Wetland Impact:
Type PFO Area ≈0.8AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				wetland is low spot in woods
Floodflow Alteration		✓			not likely inundated by out of bank flows from adjacent ditches
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/270 Managed Lane Study City/County: Prince George's Sampling Date: 4/24/2018

Applicant/Owner: SHA State: MD Sampling Point: 1299-wet

Investigator(s): MRS, CLO Section, Township, Range: none

Landform (hillslope, terrace, etc.): Roadway Embankment Local relief (concave, convex, none): Concave/slightly Slope (%): 1-3%

Subregion (LRR or MLRA): MLRA 149A Lat: 39.020711 Long: -76.936539 Datum: WGS 84

Soil Map Unit Name: Elkton Silt Loam, 0 to 2 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

Photos 1399-1401

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [X] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [X] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [X]	Depth (inches): —
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 3"
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 2"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12 upland

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	80	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Acer rubrum	2	Y	FAC
2. Liquidambar styraciflua	8	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 15' radius)			
1. Symplocarpus foetidus	20	Y	OBL
2. Carex lurida	20	Y	OBL
3. Lonicera japonica	10	N	FACU
4. Microstegium vimineum	20	Y	FAC
5. Rubus sp.	5	N	–
6. Smilax rotundifolia	5	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: _____)			
1.			
2. None			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12QQ-West

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 2.5/1	100					Clay loam	high organic, a lot of roots
3-5	10YR 3/1	100					Clay loam	
6-12	10YR 3/1	50	2.5Y 5/1	50	D/PL	M	sandy clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.08AC Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? Yes

Adjacent land use Roadway & forest Distance to nearest roadway or other development <30ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 1200-wet

Latitude 39.020711 Longitude -76.936539

Prepared by: MRS Date 4/24/2018

Wetland Impact:
Type PFO Area 0.08 AC

Evaluation based on:
Office ✓ Field

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Verified by RL & MRS on 5/8/18

Project: ~~I-495 IRVM – Prince George's County~~ 495/270 Managed Lanes		**Feature ID:** ~~11-D~~ 12QQ	**Stream Order:**
Date: ~~4/7/2015~~ 5/8/18	**State:** MD	**Photos:** ~~136-137~~ 1611-1614	
Crew: ~~MH/SLY~~ RL & MRS	**County:** PG	**Last Flag Number:** Not flagged - Use 2004 boundary	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing, drains wetland, culvert under I-495			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~Wetland~~ 12000	Downstream: Culvert	Adjacent/Abutting: ~~Wetland~~ 12PPP

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 1'	☑ Silts	☑ Sands	☐ Muck	RB: Recently cleared, paved road
☒ Artificial (man-made)	Depth: 1"	☐ Cobbles	☐ Gravel	☒ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Riprap	LB: Unmowed herbaceous
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: ~~February~~ April Year: ~~2015~~ 2018
◉ No rain	◉ 0-0.5	○ ○ ○ ○ ○ ⊗ ○ ◉ ○ ○ ○ ○ ○	
○ Light rain	○ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6	
○ Heavy Rain	○ >1	Severe Drought / Moderate Drought / Normal / 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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 12-R	**Stream Order:**
Date: 4/9/2018	**State:** MD	**Photos:** 1185 – 1187	
Crew: MRS + AGA	**County:** Prince George's	**Last Flag Number:** using existing polygon in GIS	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Intersects ground water where there is incision, Underneath concrete			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: 12-H (perennial)	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-4'	☒ Silts	☒ Sands	☐ Muck	RB: Roadway w/ narrow forest fringe (20' width)
☒ Artificial (man-made)	Depth: 0-0.1'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Severely incised, not stable	☐ Bedrock	☐ Concrete		LB: Forest (uplands)
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: concrete lining collapsed due to incision/undercutting					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: March Year: 2018												
◉ No rain	☒ 0-0.5	○	○	○	○	○	☒	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Verified by RL & MRS on 5/8/18

~~MH, SLY~~
~~4-7-2015~~

Stream Features
Field Sheet

5/8/18 495/270 Managed Lanes 12RRR

Date: ~~8/25/04~~ Project Site: ~~Capital Beltway~~ Wetland # : ~~W51PG~~

Observer(s): ~~BJG, BMS, KCG~~ RL & MRS

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____
Gradient: 1%
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width ~3-5' Depth 18" Avg. Water Depth 2"

Has stream morphometry been altered? yes Describe type and degree:
Culvert, Rip-Rap block substrate

Habitat and Pollutants:

Substrate (predominant type (s)): Rip-Rap wire block
Habitat Complexity (Characterize) low, no habitat due to artificial rip-rap substrate

Bank Erosion: Severe _____ Moderate _____ Minor √
Describe: Little to none due to substrate
Silt Deposition: none
Pollutants (observation / potential sources): Iron flocculation

Stormwater Outfalls: 2

Riparian Zone:

Development: Forested to the right and left with RV park and storm water pond at top
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: River birch, Sycamore, Viburnum
Betula nigra, Platanus occidentalis, Viburnum dentatum
Approximate % shading by woody species: 60%
Steepness of adjacent slopes: 1%

Notes: ~~R2UBr, Flags W51PG-1B thru 6B and 1A thru 18A~~
Photos 1617-1619

Verified

Stream Features
Field Sheet

4/9/18 I-495 | I-270 Managed Lane Study

Date: 8/18/04 Project Site: Capital Beltway Wetland # : ~~37~~ ~~11 H~~ 12-S

MRS+AGA 4/9/18

Observer(s): BJG, BMS, KCG MRS + AGA ~~MRS - 4/10/15~~

Stream Flow:

Perennial: _____ Intermittent √ Ephemeral _____

Gradient: 3%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 4' Depth 30" (incised channel depth) Avg. Water Depth ~~1'~~ 2" ← * width & water depth @ OHW

Has stream morphometry been altered? yes Describe type and degree:

culverts

Habitat and Pollutants:

Substrate (predominant type (s)): hard packed clay/mud

Habitat Complexity (Characterize) low- smooth channel with nothing in hard mud

Bank Erosion: Severe √ Moderate _____ Minor _____

Describe: heavy undercut banks, smooth channel

Silt Deposition: none

Pollutants (observation / potential sources): none

Stormwater Outfalls: 1

Riparian Zone:

Development: ~~I-495 on right~~, Forested on Left & Right

Riparian vegetation: Forest √ Shrubs √ Herbs _____

Dominant Species: ~~Beech~~ Red oak, white oak, Tulip poplar Quercus rubra, Quercus alba, Liriodendron tulipifera

Approximate % shading by woody species: 75%

Steepness of adjacent slopes: 20%

Notes: ~~R4SB3 Flags 1-11A 1-32B~~

Photos: 1188 - 1191

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lane City/County: Prince George Sampling Date: 10/19/18
Applicant/Owner: MDOT SHA State: MD Sampling Point: 125S
Investigator(s): MRS/EYG Section, Township, Range:
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 149B Lat: 39.020632 Long: -76.933507 Datum: NGS 84
Soil Map Unit Name: Udorthents, highway, 0 to 65% slope NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: old name was W26PG and identified as a PEM, currently some trees + shrubs in wetland so changed to PFO

Photos 2668-2673

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 0-5"	
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"	
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"	**Wetland Hydrology Present?** Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: surface water, likely GW seepage from roadway embankment based of iron flocculate

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 1255

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Black willow Salix nigra	20	Y	OBL
2. Red Maple Acer rubrum	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Black willow Salix nigra	15	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Herb Stratum (Plot size: 15' radius)			
1. Reed canary Phalaris arundinacea	45	Y	OBL
2. Leersia oryzoides	30	Y	OBL
3. Sagittaria latifolia	15	N	OBL
4. Persicaria sagittata	10	N	OBL
5. Impatiens capensis	15	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
50% of total cover: 57	20% of total cover: 22		

Woody Vine Stratum (Plot size: 15' radius)			
1.			
2.			
3. None			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

Trees mostly on edge, small with sparse canopy

SOIL

Sampling Point: 1255-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-3	2.5Y 3/2	85	7.5 YR 4/6	15	C	M	mucky silt	organic rich
3-12	2.5Y 4/2	80	7.5 YR 4/4	20	C	M/P	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.31 Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? _____

Adjacent land use highway, meadow Distance to nearest roadway or other development 30 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 SS

Latitude 39.020632 Longitude -76.933507

Prepared by: MRS Date 5/1/18

Wetland Impact:
Type PEM Area 0.31Ac

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			Y	flows into perennial stream
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓			Y	recieves roadway runoff before it enters stream
Nutrient Removal	✓			N	
Production Export	✓			N	
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

* Refer to backup list of numbered considerations.

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495 | 270 MAN LANE SWM City/County: PG Sampling Date: 10/19/18

Applicant/Owner: MDOT SHA State: MD Sampling Point: 12SSS - WET

Investigator(s): MRS, EYG Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 149A Lat: 38.920545 Long: -76.933361 Datum: WGS 84

Soil Map Unit Name: Codorus and Hatboro soils, Frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
DRAINS TOWARDS CHANNEL and into Paint Branch (UT)

PHOTO #: 67 - 70

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [X] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0"
Water Table Present?	Yes X	No _____	Depth (inches): 0 - 12"
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: wetland is a depression that has a small drainage into a small perennial tributary of Paint Branch

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12SS

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. BLACK WILLOW Salix nigra	40	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3. NONE			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 15' radius)			
1. REED CANARY P. arundinacea	70	Y	OBL
2. PERSICARIA SAGITTARIUM	20	N	OBL
3. BEOHMERIA CYLINDRICA	20	N	FACW
4. DOGBANE Apocynum cannabinum	10	N	FACU
5. J. HONEYSUCKLE Lonicera japonica	5	N	FACU
6. CATTAIL Typha latifolia	10	N	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	135 = Total Cover		
50% of total cover: 67	20% of total cover: 27		

Woody Vine Stratum (Plot size: 15')			
1. GRAPE SP. V. vulpina	15	Y	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks: (If observed, list morphological adaptations below).

RED MAPLE, RIVER BIRCH, WINTER BERRY HOLLY PRESENT IN WETLAND.

CENTER OF WETLAND = DESIGNATED PEM 12TTT (70% PHRAG, 30% REED CANARY, 20% CATTAIL)

SOIL

Sampling Point: 12555-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					SILTY CLAY	
4-12	2.5Y 4/2	90	7.5YR 4/4	10	C	M	SILTY CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.45 Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest, grassy meadow Distance to nearest roadway or other development 90 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12555

Latitude 39.020419 Longitude -76.933361

Prepared by: MRS Date 10/19/18

Wetland Impact:
Type PFO Area 0.45 Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			watershed upstream is forested
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

0.71
-0.41

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** T-T	**Stream Order:**
Date: 4/9/18	**State:** MD	**Photos:** 1193 - 1195	
Crew: MRS + AGA	**County:** Prince George's	**Last Flag Number:** Using existing polygon in GIS	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: observed low flow

Hydrologic Connectivity –	Upstream:	Downstream:	Adjacent/Abutting:
	none	12-S	Wetland 12-4

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 0.5 - 2'		☐ Silts	☒ Sands	☐ Muck		RB: Roadway
☒ Artificial (man-made)	Depth: 0.1'		☒ Cobbles	☐ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderate, incised		☐ Bedrock	☒ Concrete			LB: Forested uplands + wetland 12-4
☐ Other:			Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				
Notes:			concrete lined at confluence w/ 12-S				

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: March Year: 2018
☒	No rain	☒	0-0.5	○	○	○	○	○	☒	○	○	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I495/270		**Feature ID:** 12-TT	**Stream Order:** 1
Date: May 1, 2018	**State:** MD	**Photos:** 2674-2676	
Crew: MRS, CLO	**County:**	**Last Flag Number:** Not flagged	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing @ time of investigation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~Unknown~~ Wetland	Downstream: 12-06	Adjacent/Abutting: —

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5-6'	☐ Silts	☒ Sands	☐ Muck		RB: Riparian forest strip/ open field
☐ Artificial (man-made)	Depth: 3-10"	☐ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: forest
☐ Other:	Severe	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				
Notes: incised w/ 5' vertical banks						

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: Apr Year: 2018												
⊗	No rain	⊗	0-0.5	○	○	○	○	○	⊗	○	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community	
	☐ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:	

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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:
Notes:		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lane Study City/County: Prince Georges Sampling Date: 10/19/18
Applicant/Owner: MDOT - SHA State: MD Sampling Point: 12TTT-wet
Investigator(s): MPS/EYG Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 149A Lat: 39.021129 Long: -76.933665 Datum: WGS 84
Soil Map Unit Name: Codorus and Hatboro soils, frequently flooded NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: Phrag and reed canary dominated PEM surrounded by PFO 12SSS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 0-8"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
feature is a depression wetland = Phrag-dominated marsh surrounded by a shrubby, treed wetland 12SSS

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 1277. wet

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 15' radius)			
1. Phragmites australis	80	Y	FACW
2. Phalaris arundinacea	40	Y	OBL
3. Typha latifolia	20	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	140 = Total Cover		

50% of total cover: 70 20% of total cover: 28

Woody Vine Stratum (Plot size: 15' radius)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (If observed, list morphological adaptations below).

wetland is PEM surrounded by PFO wetland 12SSS, center portion likely too wet for woody species??

SOIL

Sampling Point: 12 TTT wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	none				silty clay	organic rich
4-12	2.5Y 4/2	90	7.5YR 4/4	10	C	PL	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.25 AC Human made? no Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use wetland, forest Distance to nearest roadway or other development 150 FT

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? no If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 TTT

Latitude 39.02125 Longitude -76.93765

Prepared by: MRS Date 10/19/11

Wetland Impact:
Type PEM Area 0.25AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				local depression holds water running off adj. wetland
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			upstream area is mostly forested
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Verified MRS

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

I-495/I-270 Managed Lane Study

Project / Site :	~~Capital Beltway~~	Date :	~~8/1/04~~ 4/9/18
Applicant / Owner :	SHA	County :	PG
Investigator :	~~BJG, BMS, KCG~~ MRS + AGA	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PFO1E
Is the area a potential Problem Area?	No	Transect ID :	~~w37~~
(If needed, explain below.)		Plot ID :	TP-38
Explanation:			

12U-Wet
~~w37~~ PG
MRS - ~~4/10/15~~

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Liquidambar styraciflua*	T	FAC	9		
2 *Acer rubrum*	T	FAC	10		
3 *Quercus palustris*	T	FACW	11		
4 *Quercus phellos*	S	FAC+	12		
5 *Viburnum dentatum*	S	FAC	13		
6 *Parthenocissus quinquefolia*	H	FACU	14		
7 *Lonicera japonica*	V	FAC-	15		
8			16		

did not observe

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 71%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
___ No Recorded Data Available	√ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water _____ (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
	___ Oxidized root channels in Upper 12 Inches
Depth to Free Water in Pit: _____ (in.)	√ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil _____ (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)
Remarks:	

feature was much drier in 2018 than in 2015

Photos: 1198 - 1200

* change wetland boundary polygon in GIS (reduced the extent due to lack of hydrology on northern boundary)

Verified
MRS 4/5/18

12A-wet

~~W163~~ W37PG

Soils

Map unit name (Series and Phase): Fallsington sandy loam
Drainage class: Poorly drained
Taxonomy (Subgroup): Typic ochraquults
Field observations confirm map type? Yes

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-1		10YR2/2			Silt Loam
1-3		2.5Y4/2	7.5YR4/6	few/faint	Clay Loam
3+		10YR4/2			Sandy Clay Loam
		GRAVEL			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks: ~~Flags W37PG-1A thru 47A and W37PG-1B thru 32B~~

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.3AC Human made? NO Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest, highway Distance to nearest roadway or other development 20'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 124 - Wet

Latitude 39.020835 Longitude -76.951035

Prepared by: MRS Date 4/9/2018

Wetland Impact:
Type PFO Area 0.3AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				feature is a low spot in the forest → possible recharge area
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 MLS City/County: Prince Georges Sampling Date: 5/1/18

Applicant/Owner: SHA State: MD Sampling Point: UPLAND-Wet

Investigator(s): MRS, CCO Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): MLRA 149A Lat: 39.020260 Long: -76.931601 Datum: WGS84

Soil Map Unit Name: Codorus and Hatboro soils, Frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks: Forested wetland, very wet, open canopy, wetland shrubs & emergent vegetation. On Paint Branch Floodplain

Photos 2677-2680

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [X] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [X] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [X] Inundation Visible on Aerial Imagery (B7)
- [X] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [X] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [X] Saturation Visible on Aerial Imagery (C9)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [X]	Depth (inches):
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in other areas of the wetland but not at sampling point

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 2 wet-met

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. American sycamore Platanus occidentalis	60	Y	FACW
2. sweetgum Liquidambar styraciflua	10	N	FAC
3. tulip poplar Liriodendron tulipifera	5	N	FACU
4. Red maple Acer rubrum	10	N	FAC
5. American elm Ulmus americana	10	N	FAC
6.			
7.			
8.			
47	95	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Sapling/Shrub Stratum (Plot size: 20' radius)			
1. Sweet gum	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
15	30	= Total Cover	
50% of total cover: 0	20% of total cover: 6		

Herb Stratum (Plot size: 20' radius)			
1. Jack in the pulpit Arisaema triphyllum	5	N	FACW
2. Carex lurida	20	Y	OBL
3. japanese honeysuckle Lonicera japonica	5	N	FACU
4. Smilax rotundifolia	2	N	FAC
5. narrowleaf cattail Typha angustifolia	5	N	OBL
6. viburnum dentatum	2	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
19	39	= Total Cover	
50% of total cover: 0	20% of total cover: 8		

Woody Vine Stratum (Plot size: 20' radius)			
1.			
2. None			
3.			
4.			
5.			
0	= Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

open forested wetland

SOIL

Sampling Point: 12UU -wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	7.5YR 3/2	98	7.5YR 3/4	2	C	PL	Sandy clay loam	high organic material
4-6"	2.5Y 6/3	100					Sandy loam	
6-10"	10YR 5/4	50	7.5YR 4/6	30	C	M	Sandy loam	
10-13"	10YR 5/6	60	10YR 7/2	40	D	M	Sandy clay loam	
7-10"			5YR 3/4	20	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Positive APDP test

Wetland Function-Value Evaluation Form

Final

Total area of wetland >0.60 AC Human made? ND Is wetland part of a wildlife corridor? yes or a "habitat island"? ND

Adjacent land use upland forest, stream Distance to nearest roadway or other development ≥100 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? ND If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12UU

Latitude 39.020260 Longitude -76.931601

Prepared by: MRS/CWD Date 5/1/18

Wetland Impact:
Type PFO Area >0.6 Acres

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y		4,7,9,15		floodplain wetland, seepage along valley side slope
Floodflow Alteration	Y		4,5,6,7,9,10,13,18	Y	subject to infrequent flooding from high flows on Paint Branch
Fish and Shellfish Habitat		N			
Sediment/Toxicant Retention	Y		1,2,3,4,5,7,9,10,12,13, 15,16	Y	
Nutrient Removal	Y		2,3,4,5,7,8,9,10,11 12,13,14	Y	
Production Export	Y		1,2,4,7,8,12,		
Sediment/Shoreline Stabilization		N			
Wildlife Habitat	Y		1,3,4,5,8,9,11,13,18, 19,20,21	Y	diverse wetland habitat along stream floodplain
Recreation		N			
Educational/Scientific Value		N			
Uniqueness/Heritage		N			
Visual Quality/Aesthetics		N			
ES Endangered Species Habitat		N			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 12000	**Stream Order:**
Date: 10/19/18	**State:** MD	**Photos:** 71-73	
Crew: MRS, EYG	**County:** PG	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	X RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOW OBS DURING SURVEY/ IRON FROM WETLAND SEEPING OUT			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: WETLAND (PFO) 1255 Downstream: LITTLE PAINT BRANCH (1200) Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: 1-2'	X	Silts		Sands	X	Muck	RB: FENCE/ FIELD.
	Artificial (man-made)	Depth: 2-8"		Cobbles		Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability: STABLE		Bedrock		Concrete			LB: HEDGEROW / ROAD
	Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1						
Notes:									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: SEPT Year: 2018												
X	No rain	X	0-0.5												X	
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5.62	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
	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/debris	X	Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:
Notes:					

Verified MRS 4/9/18

Stream Features
Field Sheet

Date: ~~8/18/04~~ 4/9/18 Project Site: ~~Capital Beltway~~ I-495/I-270 Managed Lane Study Wetland #: ~~39~~ ~~11DD~~ 12V

MRS = 4/29/15

Observer(s): ~~BJG, BMS, KCG~~ MRS + AGA

Stream Flow:

Perennial: √ Intermittent _____ Ephemeral _____

Gradient: 1%

Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 36" Depth ~~24"~~ TOB Depth = 12" Avg. Water Depth ~~5"~~ 2" ← water depth @ OHW

Has stream morphometry been altered? yes Describe type and degree:
culvert

Habitat and Pollutants:

Substrate (predominant type (s)): gravel/cobble

Habitat Complexity (Characterize) low to moderate- undercut, small pools, clear riffles

Bank Erosion: Severe _____ Moderate √ Minor _____

Describe: undercutting present

Silt Deposition: none

Pollutants (observation / potential sources): iron flocculation

Stormwater Outfalls: 1

Riparian Zone:

Development: I-495 to left

Riparian vegetation: Forest √ Shrubs √ Herbs _____

Dominant Species: Sweet gum, Tulip Poplar, Red Maple
Liquidambar styraciflua, Liriodendron tulipifera, Acer rubrum

Approximate % shading by woody species: 60%

Steepness of adjacent slopes: 1%

Notes: ~~R2UB1, Flags W39PG-8B thru 18B~~

photos: 1201 - 1202

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lanes Study City/County: Prince George's Sampling Date: 5/2/17
Applicant/Owner: SHA State: MD Sampling Point: 12VV-wet
Investigator(s): MRS/AS Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): MLRA 149 Lat: 39.025616 Long: -76.945532 Datum: WGS 84
Soil Map Unit Name: Udorthents highway 0-6% slope NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐
Hydric Soil Present? Yes ☑ No ☐
Wetland Hydrology Present? Yes ☑ No ☐
Is the Sampled Area within a Wetland? Yes ☑ No ☐

Remarks: wetland formed/created/planted along old construction access road. -man-made
photos 0253-0255

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☑ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:
Surface Water Present? Yes ☑ No ☐ Depth (inches): 0-1"
Water Table Present? Yes ☑ No ☐ Depth (inches): 0-6"
Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland is a low spot along the Paint Branch floodplain → it is also in the center of an old construction access road and the soils are compacted! feature appears to receive roadway runoff from a SWM pipe outfall approx 80' to the SE

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12WP-wc

Tree Stratum (Plot size: 15' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. river birch * Betula nigra	10	Y	FACW
2. Tulip poplar * Liriodendron tulipifera	5	Y	FACU
3.			
4.			
5.			
6.			
7. * both planted			
8.			
	15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3

Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2. None			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 15' radius)			
1. Carex lurida	20	Y	OBL
2. Juncus effusis	10	Y	OBL
3. Lythrum salicaria	10	Y	OBL
4. cattail Typha latifolia	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9

Woody Vine Stratum (Plot size:)			
1.			
2. None			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

trees planted → restored area along old construction access road

SOIL

Sampling Point: 12VV-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1"	10YR 2/1	100					LOAM	SATURATED
1-4"	7.5YR 3/1	60	7.5YR 2.5/3	30	C	M	LOAM	
4-12"	7.5YR 4/1	70	7.5YR 3/4	30	C	M	LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.03AC Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest, roadway Distance to nearest roadway or other development 65 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12UU

Latitude 39.025416 Longitude -76.945533

Prepared by: MRS Date 5/2/18

Wetland Impact:
Type PEM Area 0.03AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y				
Floodflow Alteration		N			
Fish and Shellfish Habitat		N			
Sediment/Toxicant Retention	Y			N	minor filtering of roadway runoff
Nutrient Removal	Y			N	minor filtering of roadway runoff
Production Export		N			
Sediment/Shoreline Stabilization		N			
Wildlife Habitat		N			
Recreation		N			
Educational/Scientific Value		N			
Uniqueness/Heritage		N			
Visual Quality/Aesthetics		N			
ES Endangered Species Habitat		N			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 12VVV	**Stream Order:**
Date: 11/8/2018	**State:** MD	**Photos:** 4489-4490	
Crew: MRS + AGA	**County:** Prince George's	**Last Flag Number:** Not flagged	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	[X] RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: observed flow during field visit, observed well defined banks & sand/gravel bars			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: None → man-made ditch = 12II | Downstream: Paint Branch | Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
[✓] Natural Channel Shape	Width: 1' - 3.5'	[✓] Silts	[✓] Sands	[ ] Muck		RB: Forest
[ ] Artificial (man-made)	Depth: <1" - 3"	[ ] Cobbles	[✓] Gravel	[ ] Other:		
[✓] Manipulated (man-altered)	Bank Erosion/stability:	[ ] Bedrock	[ ] Concrete			LB: Forest
[ ] Other:	stable	Side slope: [ ] ≥1:1	[✓] 2:1	[✓] 3:1	[ ] ≤4:1	
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2018													
[✓] No rain	[X] 0-0.5												X		
[ ] Light rain	[ ] 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.84	5	6	
[ ] Heavy Rain	[ ] >1	Severe Drought			Moderate Drought		Normal			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			
[✓] 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/debris	[✓] Observed/predicted flow events	
	[✓] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] 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:

Notes:

Verified MRS 4/9/18

Data Form
Routine Wetland Determination
(1987 COE Wetlands Deliniation Manual)

I-495/I-270 Managed Lane Study 4/9/2018

Project / Site :	Capital Beltway	Date :	8/18/04
Applicant / Owner :	SHA	County :	PG
Investigator :	BJG, BMS, KCG MRS+AGA	State :	MD
Do Normal Circumstances exist on the site?	Yes		
Is the site significantly disturbed? (Atypical Situation)?	No	Community ID :	PFO1E
Is the area a potential Problem Area?	No	Transect ID :	w39
(If needed, explain below.)		Plot ID :	TP-39

Explanation: Near flag 21B

12W-Wet
W39PC
MRS - 4/25/18

Vegetation

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Liquidambar styraciflua*	T	FAC	9		
2 *Acer rubrum*	T	FAC	10		
3 *Lonicera japonica*	V	FAC-	11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks: Visual estimation of dominance by aerial cover

Hydology

___ Recorded Data (Describe in Remarks)	Wetland Hydology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators
___ Aerial Photographs	___ Inundated
___ Other	√ Saturated in Upper 12 Inches
√ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water _____ (in.)	√ Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: 10 (in.)	___ Oxidized root channels in Upper 12 Inches
	√ Water-Stained Leaves
	___ Local Soil Survey Data
Depth to Saturated Soil 10 (in.)	___ Fac-Neutral Test
	___ Other (Explain in Remarks)

Remarks:

photos: 1203 - 1207

★ Boundary modified in GIS polygon

Verified
MRS
4/9/18

12W-Wet

W39PG

Soils

Map unit name (Series and Phase): Mattapex silt loam
Taxonomy (Subgroup): Aqualfic Normudults
Drainage class: moderately well drained
Field observations confirm map type? No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance / Contrast	Texture, Concretions, Structure, ect.
0-1	o	10YR2/1			Loam
1-3		10YR3/1			Silty Clay Loam
3-10		10YR4/3	10YR5/8	common/faint	Sandy Clay Loam
10+		10YR4/2			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Soils
___ Concretions
___ High Organic Content In Surface Layer In Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present? Yes
Wetland Hydrology Present? Yes
Hydric Soils Present? Yes
Is this Sampling Point Within a Wetland? Yes

Remarks: ~~Flags W39PG-1A thru 17A and W39PG-1B thru 62B~~

Wetland Function-Value Evaluation Form

Total area of wetland 0.6AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use forest & highway Distance to nearest roadway or other development 20'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12W-Wet

Latitude _____ Longitude _____

Prepared by: MRS Date 4/9/18

Wetland Impact: Type PFO Area 0.6 AC

Evaluation based on: Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		7, 9, 13		
Floodflow Alteration	✓		1, 3, 4, 5, 6, 7, 9, 13, 15, 16, 18	✓	contributing waterbed is highway interchange and roadway
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1, 3, 4, 7, 10, 11, 12, 15, 16	✓	
Nutrient Removal	✓		1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14	✓	
Production Export		✓	1, 2, 7, 14		
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓	5, 8, 13		
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

495/270 managed Lanes Study

Waters of the U.S. Data Sheet Verified 5/2/18 MRS

Project: ~~I-495 IRVM~~ Prince George's County		**Feature ID:** ~~11-K~~ 12WW	**Stream Order:**
Date: ~~4/13/15~~ 5/2/18	**State:** MD	**Photos:** ~~2939-2940, 2956-2958~~ 256-258	
Crew: ~~MRS/MBS~~ MRS/AS	**County:** PG	**Last Flag Number:** ~~4A&B~~ not flagged -> old delineation	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Well-developed riparian features in stream bed and abundant flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 60" culvert	Downstream: ~~W-30-PG~~ 12II	Adjacent/Abutting: No

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6-10	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6-12"	☑ Cobbles	☑ Gravel	☑ Other: Large riprap stone	
☑ Manipulated (man-altered)	Bank Erosion/stability: Severely eroded	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Reinforced with stone					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~March~~ April Year: ~~2015~~ 2018													
◉ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	◉	○	○	○	○	○	
○ Light rain	⊗ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 12WWW	**Stream Order:**
Date: 11/8/2018	**State:** MD	**Photos:** 4491 - 4494	
Crew: MRS + AGA	**County:** Prince George's	**Last Flag Number:** Not flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: observed flow during field visit, observed sediment sorting

Hydrologic Connectivity – Upstream: roadside ditch? Downstream: roadside ditch (perennial) Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
✓	Natural Channel Shape	Width: 3 - 15'		Silts	✓ Sands	Muck	RB: Forest
	Artificial (man-made)	Depth: <1" - 3"	✓	Cobbles	✓ Gravel	Other:	
✓	Manipulated (man-altered)	Bank Erosion/stability: Moderately unstable		Bedrock	✓ Concrete		LB: Forest
	Other:		Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: Concrete lined at outlet for ~10', then natural channel shape

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2018												
✓	No rain	X	0-0.5												X	
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	84	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events
	✓	Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495/I-270 Managed Lane Study City/County: PG County Sampling Date: 4/9/19

Applicant/Owner: SHA State: MD Sampling Point: 12X-wet

Investigator(s): MRS + AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): Low area along highway Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): MLRA 149A Lat: 39.021099 Long: -76.948358 Datum: WGS 84

Soil Map Unit Name: Udorthents, highway, 0 to 65 percent slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

photos 1208 – 1210
Abuts 12-W (PFO)
under power line

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 2"
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

wetland 12X was previously combined with wetland 12W

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12x = wet

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15')			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Pyrus calleryana	2		NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 2 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 15')			
1. Carex lunda	25	N	OBL
2. Microstegium vimineum	55	Y	FAC
3. NI ironweed Veronia noveboracensis	10	N	FACW
4. Typha latifolia	40	Y	OBL
5. Juncus effusus	15	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0 145 = Total Cover		
50% of total cover: 0 75	20% of total cover: 0 29		
Woody Vine Stratum (Plot size: 15')			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12X-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	7.5YR 5/1	90	7.5YR 4/4	10	C	PL	silt clay	
8-14"	10YR 5/3	80	10YR 4/6	10	C	M	silty sand	
			10YR 5/1	10	D	M	silty sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.2AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? yes

Adjacent land use highway, forested wetland Distance to nearest roadway or other development 20-30'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? _____ If not, where does the wetland lie in the drainage basin? upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12X-WET

Latitude 39.021099 Longitude -76.949358

Prepared by: MRS Date 4/9/18

Wetland Impact:
Type PEM Area 0.2 AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓			✓	dense cattails trap and hold stormwater runoff
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

495/270 Managed Lanes Study

Waters of the U.S. Data Sheet Verified 5/2/18 MRS

Project: ~~I-495 IRVM - Prince George's County~~		**Feature ID:** ~~11-A~~ 12KX	**Stream Order:**
Date: ~~3/30/2015~~ 5/2/18	**State:** MD	**Photos:** ~~2812-2816~~ 259-262	
Crew: ~~MRS/ET~~ MRS/AS	**County:** PG	**Last Flag Number:** ~~11-A-5a&b, no 1 or 2 b flag~~ N/A previously flagged	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Well defined blue line stream with abundant flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study area	Downstream: ~~Wetland??~~ 12II	Adjacent/Abutting: ~~Wetland Identified??~~ None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4-6'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: <1'	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	✓ Bedrock	☐ Concrete		LB:
☐ Other:	Stable to moderate	Side slope: ✓ ≥1:1 ✓ 2:1 ✓ 3:1 ☐ ≤4:1			Forest

Notes: Flows east into culvert under I-95, Stable upstream of 95, incised and moderate erosion below from outside study area in study area

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: ~~February~~ April Year: ~~2015~~ 2018													
○ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	◉	○	○	○	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Prince George's Sampling Date: 11/8/2018
Applicant/Owner: SHA State: MD Sampling Point: 12XXX-WET
Investigator(s): MRS + AGA Section, Township, Range:
Landform (hillslope, terrace, etc.): Roadside ditch Local relief (concave, convex, none): concave Slope (%): 1-3%
Subregion (LRR or MLRA): MLRA 149A Lat: 39.03141 Long: -76.946921 Datum: WGS 84
Soil Map Unit Name: Udorthents, highway, 0 to 65 percent slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? NO Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ○	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes ✓	No ○	
Wetland Hydrology Present?	Yes ✓	No ○	

Remarks: constructed roadside ditch
Receives GW seepage from non-roadside slope
photos 4500 - 4502

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [✓] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 4"
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 12XXX-

Tree Stratum (Plot size: 6X10' rectangle)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2. —			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 6X10' rectangle)			
1. None			
2. —			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 6X10' rectangle)			
1. None			
2. —			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 6X10' rectangle)			
1. Typha angustifolia	90	Y	OBL
2. Ludwigia alternifolia	5	N	FACW
3. Lythrum salicaria	5	N	FACW
4. Choctiniium coelestinum	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	~~0~~ 105 = Total Cover		

50% of total cover: ~~0.0~~ 52.5 20% of total cover: ~~0.0~~ 21

Woody Vine Stratum (Plot size: 6X10' rectangle)			
1.			
2. None			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet: WET

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ⊗ No ○

Remarks: (Include photo numbers here or on a separate sheet.)
Phragmites stand south of data point location

SOIL

Sampling Point: 12XXX-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	7.5YR 3/3	100					organic muck	
2-6"	10YR 5/2	95	10YR 5/4	5	C	M	silt	with some gravel
6-10"	10YR 5/2	100					silt	with some gravel
10-12"	10YR 6/3	100					silty sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ⊗ No ○

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.07Ac Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use roadway Distance to nearest roadway or other development 20 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lepley

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 KKA

Latitude 39.031669 Longitude -76.916462

Prepared by: MMS Date 11/8/18

Wetland Impact:
Type PEM Area 0.07Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delincation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				observed GW discharge from hillside
Floodflow Alteration	✓				filters roadway runoff
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				filters roadway runoff
Nutrient Removal	✓				" "
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat					
Other					

* Refer to backup list of numbered considerations.

Notes:

I-495/I-270 Managed Lane Study **Waters of the U.S. Data Sheet** 124 verified MRS 4/9/18

Project: ~~I-495 IRVM – Prince George's County~~		**Feature ID:** ~~11-EE~~	**Stream Order:**
Date: ~~4/29/15~~ 4/9/18	**State:** MD	**Photos:** ~~3202-3204~~ 1211 – 1212	
Crew: ~~MRS/MBS~~ MRS + AGA	**County:** PG	**Last Flag Number:** ~~not flagged~~ N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: well defined channel with pockets of surface water, but not flowing			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 12W + 12X (part of ch)	Downstream: ~~11-DD~~ 12NA through culvert	Adjacent/Abutting: ~~wetland W39PG~~ 12W + 12X

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: ~~6"~~ 1–6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest + Roadway Ramp
☐ Other:	Stable	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: March Year: 2018 ~~February 2015~~												
◉ No rain	⊗ 0-0.5	○	○	○	○	○	⊗	○	○	○	○	○	○	○
○ Light rain	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 495/270 Managed Lanes Study City/County: Prince Georges Sampling Date: 5/2/18
Applicant/Owner: SHA State: MD Sampling Point: 12YY-wet
Investigator(s): MRS/AS Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 149A Lat: 39.022707 Long: -76.945376 Datum: WGS84
Soil Map Unit Name: Glenelg-Wheaton-Urban land complex 0-8% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: appears to be a man-made depression

photos 5/2/18 263-265

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0-2"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 2"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: low spot in woods receiving runoff from the adjacent forested upland and the highway

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12YY-wet

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. red maple Acer rubrum	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= 60	= Total Cover	

50% of total cover: = 30 20% of total cover: = 12

Sapling/Shrub Stratum (Plot size:)			
1. spicebush Lindera benzoin	5	Y	FACW
2. Green ash Fraxinus pensylvanica	5	Y	FACW
3. Ilex verticillata	10	Y	FACW
4.			
5.			
6.			
7.			
8.			
	= 20	= Total Cover	

50% of total cover: = 10 20% of total cover: = 4

Herb Stratum (Plot size:)			
1. Japanese honeysuckle L. japonica	10	Y	FACU
2. Poison ivy Toxicodendron radicans	5	N	FAC
3. porcelain berry	10	Y	UPL
4. Ampelopsis brevipedunculata			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= 25	= Total Cover	

50% of total cover: = 12.5 20% of total cover: = 5

Woody Vine Stratum (Plot size:)			
1. Vitis vulpina	10	Y	FAC
2.			
3.			
4.			
5.			
	= 10	= Total Cover	

50% of total cover: = 5 20% of total cover: = 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 12 YY - wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 4/1	100					LOAM	
4-8	10 YR 5/3	70	10 YR 4/6	30	C	M	LOAM	
8-12	10 YR 5/1	60	7.5 YR 4/6	40	C	M	CLAY/LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.05 AC Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development 40 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12YY

Latitude 39.022707 Longitude -76.948376

Prepared by: MRS Date 5/2/18

Wetland Impact:
Type PFO Area 0.05 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			✓	local low spot for SW infiltration
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				minor filtering of runoff
Nutrient Removal	✓				minor filtering of runoff
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		Feature ID: 12YY	Stream Order:
Date: 11/8/2018	State: MD	Photos: 4503 - 4510	
Crew: MRS + AGA	County: Prince George's	Last Flag Number: Not flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Observed flow during field visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 12XX	Downstream: Paint Branch (12II) via culvert under ramp to 95 South	Adjacent/Abutting: 12WW

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (NHSS)
✓ Natural Channel Shape	Width: 2-5'	✓ Silts	✓ Sands	☐ Muck		RB: Roadway Embankment
☐ Artificial (man-made)	Depth: 1-6"	✓ Cobbles	✓ Gravel	☐ Other:		
✓ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete			LB: Forest
☐ Other:		Side slope: ✓ ≥1:1	✓ 2:1	✓ 3:1	☐ ≤4:1	
Notes:						

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: october Year: 2018													
✓	No rain	✓	0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○	
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.84	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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					
✓ 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/debris	✓ Observed/predicted flow events			
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Verified MRS 4/9/18

Stream Features
Field Sheet

Date: ~~8/18/04~~ 4/9/18 Project Site: ~~Capital Beltway~~ I-495/I-270 Managed Lane Study Wetland # : ~~W38PG~~ 12Z

Observer(s): ~~BJG, BMS, KCG~~ MRS + AGA ~~MRS - 4/21/15~~

Stream Flow:

Perennial: _____ Intermittent √ Ephemeral _____
Gradient: 8%
Approximate Drainage Basin: _____

Morphology:

Avg. Channel Width 30" Depth ~~5"~~ 1" Avg. Water Depth _____ (water depth @ OHW)

Has stream morphometry been altered? yes Describe type and degree:
concrete on lower half of stream

Habitat and Pollutants:

Substrate (predominant type (s)): mud
Habitat Complexity (Characterize) low
shallow channel, low flow, concrete on lower portion
Bank Erosion: Severe _____ Moderate _____ Minor √
Describe: minor channel erosion
Silt Deposition: _____
Pollutants (observation / potential sources): none

Stormwater Outfalls: 1

Riparian Zone:

Development: I-495 ramp on ~~right~~ left, forested on ~~left~~ right
Riparian vegetation: Forest √ Shrubs √ Herbs _____
Dominant Species: ~~maple, oak~~ Acer sp., Quercus sp., Robinia pseudoacacia
Approximate % shading by woody species: 80%
Steepness of adjacent slopes: 1- 2%

Notes: ~~R4UB3, Flags W38PG-1A thru 10A and W38PG-1B thru 14B~~

* Modified boundary polygon in GIS

photos: 1213 - 1214

495/270 Managed Lanes Study

Waters of the U.S. Data Sheet Verified 5/2/18 MRS

Project: ~~I-495 IRVM – Prince George's County~~		**Feature ID:** ~~11-KK~~ 1222	**Stream Order:**
Date: ~~5/12/15~~ 5/2/18	**State:** MD	**Photos:** ~~9, 10~~ 266-267	
Crew: ~~MH KH~~ MRS/AS	**County:** PG	**Last Flag Number:** ~~Not Flagged~~ N/A	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Standing water due to logs blocking channel and failed culvert. Water observed flowing at time of survey.

Hydrologic Connectivity – Upstream: Culvert under 495 | Downstream: Paint branch (12II) | Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-30'	☑ Silts	☐ Sands	☑ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-6"	☑ Cobbles	☑ Gravel	☑ Other: rip rap	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderately stable	Side slope: ☐ ≥1:1 ☑ 2:1 ☑ 3:1 ☑ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April	Year: ~~2015~~ 2018
◉ No rain	◉ 0-0.5	○	○	○	○	○	⊗	◉	○	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I-495 I-270 Managed Lanes Study City/County: Prince George's Co. Sampling Date: 11/14/14

Applicant/Owner: SHA State: MD Sampling Point: 1277-WET

Investigator(s): MRS, SJF Section, Township, Range: Hillandale

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): MLRA 149A Lat: 39.027039 Long: -76.950729 Datum: NAD83

Soil Map Unit Name: Codorus and Hatboro soils, frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

photos 4523-4526

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 4
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 12222-WET

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Sycamore (Platanus occidentalis)	50	Y	FACW
2. Musclewood (Carpinus caroliniana)	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	60	= Total Cover	
50% of total cover: 30	20% of total cover: 12		

Sapling/Shrub Stratum (Plot size: 10')			
1. Musclewood (Carpinus caroliniana)	10	Y	FAC
2. River birch (Betula nigra)	10	Y	FACW
3. Red maple (Acer rubrum)	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		

Herb Stratum (Plot size: 10')			
1. Persicaria (small pink)	10	N	—
2. Square stem monkey flower (Mimulus ringens)	5	N	OBL
3. Japanese stiltgrass (Microstegium vimineum)	10	N	FAC
4. False nettle (Boehmeria cylindrica)	2	N	OBL
5. Many-headed rush	35	Y	OBL
6. (Scirpus polyphyllus)			
7.			
8.			
9.			
10.			
11.			
12.			
	62	= Total Cover	
50% of total cover: 31	20% of total cover: 12.4		

Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (If observed, list morphological adaptations below).

Sampling Point: 12ZZZ-WET

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 5/8	5	C	M	silt loam	
4-14	2.5Y 5/2	90	7.5YR 5/8	10	C	M	sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.35Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest, roadway Distance to nearest roadway or other development 50

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 12 ZZZ

Latitude 39.026936 Longitude -76.85081

Prepared by: MMS Date 11/19/15

Wetland Impact:
Type PFO Area 0.35 Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			✓	
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				Potential vernal pool
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet Verified 7/20/18 MRS

Project: ~~I-495 IRVM – Montgomery County~~ 495/270 managed Lane Study		**Feature ID:** ~~W220M~~ 13A	**Stream Order:**
Date: ~~12/12/14~~ 7/20/18	**State:** MD	**Photos:** ~~10~~ 3164-3170	
Crew: ~~KJH, KH~~ MRS/KH	**County:** Montgomery	**Last Flag Number:** ~~W220-1A&B~~ not flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Water flowing during field visit.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Concrete lined channel	Downstream: Outside study area to ~~W16M~~ (Northwest Branch)	Adjacent/Abutting: None

13P Northwest Branch

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 8-10'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 10"	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: upper portion of channel is concrete lined ⇒ crumbling + undercut

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	☒	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 13-B	**Stream Order:**
Date: 7/20/18	**State:** MD	**Photos:** 3174-3179	
Crew: MRS/KH	**County:** Montgomery	**Last Flag Number:** 13B'-4 (GPS - not flagged)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: carrying a base flow w/ no rain in days			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 3' culvert	Downstream: buried inlet?	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-3'	☐ Silts	☒ Sands	☐ Muck	RB: forest
☒ Artificial (man-made)	Depth: 0-0.1"	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: grass / road ROW
☐ Other:	stable - concrete	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: concrete lined	lining eroding				

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JUNE Year: 2018												
☒ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 13C	**Stream Order:**
Date: 7/20/18	**State:** MD	**Photos:** 3180 - 3184 (US) 3185 - 3198 (DS)	
Crew: MRS KH	**County:** PG	**Last Flag Number:** 13C-4 (centerline points) US 13C-5 thru 13C-12 (centerline points) DS	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year) * at 13C-5 *	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: some standing water at beginning of channel, no flow, flow at DS portion

Hydrologic Connectivity –	Upstream: culvert	Downstream: culvert	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-6'		☒ Silts	☒ Sands	☐ Muck	RB: forest
☒ Artificial (man-made)	Depth: 0-1"		☒ Cobbles	☐ Gravel	☒ Other: riprap	
☐ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete		LB: forest
☐ Other:	stable - riprap		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: man-made feature lined w/ concrete, riprap, & gabion baskets

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JUNE Year: 2018												
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: 495/270 managed lane study		**Feature ID:** 13E	**Stream Order:**
Date: 8/22/18	**State:** MD	**Photos:** 4049 - 4050	
Crew: MRS/ET	**County:** Montgomery	**Last Flag Number:** 13E-7	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		✓ Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: originates as erosional headcut @ I-495			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: NA Downstream: 13P Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 3-4'	✓ Silts	✓ Sands	Muck	RB: forest
Artificial (man-made)	Depth: 1-4"	✓ Cobbles	✓ Gravel	Other:	
Manipulated (man-altered)	Bank Erosion/stability: highly eroded	Bedrock	Concrete		LB: forest
Other:		Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: No flow observed after rain event

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018												
✓ No rain	✓ 0-0.5									✓				
Light rain	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Heavy Rain	>1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	Observed/predicted flow events
	Vegetation matted down, bent, or absent	Destruction of terrestrial veg.	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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 13F	**Stream Order:**
Date: 8/22/18	**State:** MD	**Photos:** 4057 - 4061	
Crew: MRB/ET	**County:** MO	**Last Flag Number:** 13F-9	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Heavy flow observed

Hydrologic Connectivity –	Upstream: Outfall	Downstream: 13D outside of study area	Adjacent/Abutting: 13E, 13G, 13H

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 10-20'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-24"	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	✓ Bedrock	☐ Concrete		LB: Forest
☐ Other:	mostly stable	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: hard stabilization and step pools constructed in-stream

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: July Year: 2018
✓ No rain	✓ 0-0.5	○ ○ ○ ○ ○ ○ ○ ○ ○ ✓ ○ ○ ○ ○	
○ Light rain	○ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6	
○ Heavy Rain	○ >1	Severe Drought / Moderate Drought / Normal / 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		
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Final

Waters of the U.S. Data Sheet

Project: I-495 / I-270 Managed Lanes Study		**Feature ID:** 13G	**Stream Order:**
Date: 8/22/18	**State:** MD	**Photos:** 4051 - 4057	
Crew: MRB / ET	**County:** MO	**Last Flag Number:** 13G-7	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flow observed in channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: N/A	Downstream: 13F	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2 - 4'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	✓ Bedrock	☐ Concrete		
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest
Notes: Originates at end of concrete channel from highway intercepts GW downstream					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: JULY Year: 2018
✓ No rain	✓ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		● 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark		
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		Feature ID: 13H	Stream Order:
Date: 8/22/18	State: MD	Photos: 4053-4056	
Crew: MRS/ET	County: MO	Last Flag Number: olal polygon	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flow observed			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: N/A	Downstream: 13F	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-6'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3"	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	✓ Bedrock	☐ Concrete		LB: Forest
☐ Other:	high erosion	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: Aug Year: 2018
✓ No rain	● 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495 I-270 MANAGED LANES STUDY		**Feature ID:** 13T	**Stream Order:**
Date: 8/02/18	**State:** MD	**Photos:** 4062 - 4068	
Crew: MRA / ET	**County:** MO	**Last Flag Number:** 13T-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		✓ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Minimal flow observed during light rain

Hydrologic Connectivity –	Upstream: N/A	Downstream: 13P	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 6'	✓ Silts	✓ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 2"	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: eroded	✓ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: originates at failed concrete channel by I-495

Weather/Precipitation Conditions: * Intermittent flow in downstream half leading to convergence w/ 13P

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: JULY Year: 2018
○ No rain	● 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
✓ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** BS	**Stream Order:**
Date: 8/22/18	**State:** MD	**Photos:** 4069-4072	
Crew: MRS/ET	**County:** MO	**Last Flag Number:** 135-8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Baseflow + standing water observed

Hydrologic Connectivity –	Upstream: N/A	Downstream: outside study area	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☐ Silts	✓ Sands	☐ Muck	RB: Highway
✓ Artificial (man-made)	Depth: 6-12"	☐ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete		LB: Mowed Grass
☐ Other:	stable	Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			

Notes: channel is backed-up and concrete has been silted over

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018													
✓	No rain	●	0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 13K	**Stream Order:**
Date: 8/23/18	**State:** MD	**Photos:** 2181-2191	
Crew: MRS, CAS	**County:** Montgomery	**Last Flag Number:** 13K-7	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Upstream = man-made concrete ch. Picked up @ ground water seep location.			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: RPW/concrete lined | Downstream: 13D (NW Branch) | Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
X Natural Channel Shape	Width: 1 - 2'	X Silts	X Sands	Muck	RB: Forest
X Artificial (man-made)	Depth: 2 - 5"	X Cobbles	X Gravel	Other:	
Manipulated (man-altered)	Bank Erosion/stability: Eroded	Bedrock	X Concrete		LB: Forest
Other:		Side slope: X ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Sections incised w/ vertical banks

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018												
X	No rain	✓	0-0.5									✓				
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X Yes		Clear, natural line impressed on the bank	X	Sediment deposition		Sediment sorting	
No		Changes in the character of soil		Water staining	X	Scour	
	X	Shelving	X	Presence of flood litter/debris		Observed/predicted flow events	
	X	Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		Abrupt change in plant community	
		Leaf litter disturbed	X	Presence of wrack line		Other:	

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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:

Notes:

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 13L	**Stream Order:**
Date: 8/23/18	**State:** MD	**Photos:** 2192-2198	
Crew: MRS + CAS	**County:** Montgomery	**Last Flag Number:** 13L-5	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	X Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Small amount of flow @ bottom, otherwise no flow			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: concrete manmade ch. | Downstream: Northwest Branch | Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
X Natural Channel Shape	Width: 3'	X Silts	X Sands	Muck	RB: Forest
X Artificial (man-made)	Depth: 0 - 2"	X Cobbles	X Gravel	Other:	
Manipulated (man-altered)	Bank Erosion/stability:	Bedrock	X Concrete		LB: Forest / 495 bridge close)
Other:	Eroded	Side slope: X ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018												
X	No rain	✓	0-0.5									✓				
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X Yes		Clear, natural line impressed on the bank	X	Sediment deposition		Sediment sorting
No		Changes in the character of soil		Water staining	X	Scour
	X	Shelving	X	Presence of flood litter/debris		Observed/predicted flow events
	X	Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 13M	**Stream Order:**
Date: 8/23/18	**State:** MD	**Photos:** 2203 - 2206 and 2214 - 2217	
Crew: MRS + CAS	**County:** Montgomery	**Last Flag Number:** 8a/8b	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	X RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	X RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Continued from existing perennial polygon from other side of 495 upstream portion is intermittent			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: 13Y Downstream: outside study area Adjacent/Abutting: 13N, 13Y, 13S

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: 4 - 8'	X	Silts	X	Sands		Muck	RB: Forest + 495
	Artificial (man-made)	Depth: 6 - 20"	X	Cobbles	X	Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			LB: Forest + neighborhood
	Other:	Somewhat Stable + eroded	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1						
Notes: No fish observed; areas of vertical slopes									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018													
X	No rain	✓	0-0.5										✓				
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	Yes		Clear, natural line impressed on the bank		Sediment deposition		Sediment sorting
	No		Changes in the character of soil		Water staining	X	Scour
		X	Shelving	X	Presence of flood litter/debris		Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:
Notes:					

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 13N	**Stream Order:**
Date: 8/23/18	**State:** MD	**Photos:** 2207 - 2213	
Crew: MRS + CAS	**County:** Montgomery	**Last Flag Number:** 13N-4	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	X Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Dry @ time of delineation			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: uplands | Downstream: 13M | Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: 3 - 4'		Silts		Sands		Muck	RB: FOREST + 495
	Artificial (man-made)	Depth: 0 - 1"		Cobbles		Gravel		Other:	
X	Manipulated (man-altered)	Bank Erosion/stability:	X	Bedrock	X	Concrete			
	Other:	Severely eroded	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1						LB: FOREST + NEIGHBORHOOD
Notes: Vertical banks; headcut near pipe outfall, adjacent to sound wall of 495									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018												
X	No rain	X	0-0.5									X				
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	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/debris		Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		Abrupt change in plant community
			Leaf litter disturbed		Presence of wrack line		Other:

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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:

Notes:

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 130	**Stream Order:**
Date: 8/23/18	**State:** MD	**Photos:** 2218 - 2222	
Crew: MRS + CAS	**County:** Montgomery	**Last Flag Number:** 130-6	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	X RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Previously delineated; low flow @ time of verification			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: none | Downstream: 13M (outside study area) | Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: 2-3'	X	Silts	X	Sands		Muck	RB: Forest
	Artificial (man-made)	Depth: 0-6"	X	Cobbles	X	Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			LB: Forest
	Other:	Moderate erosion	Side slope: ☒ ≥1:1 ☒ 2:1 ☒ 3:1 ☒ ≤4:1						

Notes: Headcut from sound wall near 495; Incised + vertical banks near highway

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018													
X	No rain	✓	0-0.5									✓					
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	Yes		Clear, natural line impressed on the bank	X	Sediment deposition		Sediment sorting
	No		Changes in the character of soil		Water staining	X	Scour
		X	Shelving	X	Presence of flood litter/debris		Observed/predicted flow events
		X	Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		Feature ID: ~~13~~ 13P	Stream Order:
Date: 8/22/18	State: MD	Photos: 4041-4044	
Crew: MRB/EV	County: MO	Last Flag Number: Not flagged - blue line	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Blue line stream Northwest Branch			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: outside study area	Downstream: outside study area	Adjacent/Abutting: 13K, 13L, 13I

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 40'	✓ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3'	✓ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	✓ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July Year: 2018
✓	No rain	●	0-0.5	○	○	○	○	○	○	○	○	○	●	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	✓ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495-270 Managed Lanes Study		Feature ID: 13Q	Stream Order:
Date: 8/28/18 & 9/5/18	State: MD	Photos: 4075-4079, on 9/5/18 3511-3517	
Crew: MHS/EYG/RL	County: Montgomery	Last Flag Number: 130-6	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing water in concrete ditch, no rain in past several days			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: none	Downstream: Culvert	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1'	☐ Silts	☐ Sands	☐ Muck	RB: Forest
✓ Artificial (man-made)	Depth: 0-0.1'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	✓ Concrete		LB: Forest
☐ Other:	stable	Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Scour and etching in the concrete invert					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018											
✓	No rain	●	0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☐ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: 495 270 MANAGED STUDY		**Feature ID:** 13R	**Stream Order:**
Date: 8/28/18	**State:** MD	**Photos:** 4081 - 4086	
Crew: MKS, EVG	**County:** MONTGOMERY	**Last Flag Number:** N/A	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: 1/2" STANDING WATER, NOT FLOWING CONCRETE LINE STORM WATER DITCH			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: CONCRETE LINED ROADSIDE DITCH | Downstream: CONCRETE LINED ROADSIDE DITCH | Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 1'		Silts	Sands	Muck	RB: GRASS + ROAD
X	Artificial (man-made)	Depth: 1/2"		Cobbles	Gravel	Other:	
	Manipulated (man-altered)	Bank Erosion/stability: stable, concrete		Bedrock	X Concrete		LB: GRASS HILLSLOPE.
	Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: concrete-lined roadside ditch appears to carry a baseflow/GW

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018												
X	No rain	X	0-0.5									X				
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
	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/debris		Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:

Notes:

Waters of the U.S. Data Sheet

Project: 495 270 MANAGED LANES STUDY		**Feature ID:** B5	**Stream Order:**
Date: 8/28/18	**State:** MD	**Photos:** 4088 - 4091	
Crew: MRS EVG	**County:** MONTGOMERY	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: MAN MADE DRAINAGE DITCH HOLDING WATER			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: OUTFALL.	Downstream: 13M	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 2'		Silts	X	Sands	X	Muck	RB: FOREST
X	Artificial (man-made)	Depth: 0 - .4'		Cobbles		Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			LB: FOREST
	Other:	STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1						
Notes: DEBRIS BUILD UP B/ CULVERT.									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018												
X	No rain	X	0-0.5										X			
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	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/debris		Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:
Notes:					

Final

Waters of the U.S. Data Sheet

Project: 495 . 270 MAN. LANES STUDY		**Feature ID:** 13T	**Stream Order:**
Date: 8/28/18	**State:** MD	**Photos:** 4092 - 95	
Crew: MRS, EVG	**County:** MONTGOMERY	**Last Flag Number:** N/A	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: ROADSIDE DITCH, mucky wet, drains into SW inlet			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: N/A	Downstream: STORMWATER INLET	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 6'		Silts		Sands	X	Muck	RB: FOREST
X	Artificial (man-made)	Depth: 0 - .1		Cobbles		Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			LB: FOREST
	Other:	STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1						
Notes:									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018												
X	No rain	X	0-0.5										X			
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	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/debris		Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		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:
Notes:					

Waters of the U.S. Data Sheet

Project: 495 - 270 MANAGED LANES STUDY		**Feature ID:** 13U	**Stream Order:**
Date: 8/28/18	**State:** MD	**Photos:** 4121 - 4122	
Crew: MRS, EVG	**County:** MONTGOMERY	**Last Flag Number:**	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round) POW		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: (POND) CATTAIL + VEGETATION SURROUNDING POND			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream:	Downstream:	Adjacent/Abutting:
	None	13K, 13Y	13W

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 25 - 30'	✓ Silts	✓ Sands	Muck	RB: GRASS FIELD
X	Artificial (man-made)	Depth: —	Cobbles	Gravel	Other:	
	Manipulated (man-altered)	Bank Erosion/stability:	Bedrock	Concrete		LB: GRASS FIELD
	Other:	Stable	Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: man-made pond, densly vegetated banks (cattail)

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018												
X	No rain	X	0-0.5									X				
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	Yes	X	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/debris	✓	Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		Abrupt change in plant community
			Leaf litter disturbed		Presence of wrack line	✓	Other: deep standing water

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:

Notes:

Waters of the U.S. Data Sheet

Project: 495 - 270 MANAGED LANES STUDY		**Feature ID:** 13 X	**Stream Order:**
Date: 08/28/18	**State:** MD	**Photos:** 4134 - 4136, 4141	
Crew: MRS, EVG.	**County:** MONTGOMERY	**Last Flag Number:** 13X-4	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: OUTFALL RUNS UNDERNEATH GRAVEL PATHWAY			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: OUTFALL Downstream: 13Y Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 2 - 6'		Silts	X	Sands		Muck	RB: GRASS
X	Artificial (man-made)	Depth: 0 - 12"		Cobbles	X	Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			
	Other:	STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1						LB: GRASS

Notes: SLIGHTLY ERODED BY OUTFALL TOWARDS PERENNIAL CHANNEL.

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: JULY Year: 2018												
X	No rain	X	0-0.5									X				
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	Yes		Clear, natural line impressed on the bank	X	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 terrestrial veg.		Abrupt change in plant community
			Leaf litter disturbed	X	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:

Notes:

CONNECTS TO PAST FEATURE 13M

Waters of the U.S. Data Sheet

Project: 495 - 270 MANAGED LANES UTOPV		**Feature ID:** 13V	**Stream Order:**
Date: 08/28/18	**State:** MD	**Photos:** 4137 - 4140, 4142 - 4147	
Crew: MRS, EVG	**County:** MONTGOMERY	**Last Flag Number:** 134-6	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOW OBSERVED, NO RAIN RECENTLY			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: unknown Downstream: perennial 13M and culvert under 495 Adjacent/Abutting: 13X, 13M, 13U

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 3-8'		Silts	X	Sands		Muck	RB: FOREST
	Artificial (man-made)	Depth: 0-5"	X	Cobbles	X	Gravel		Other:	
X	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			
	Other:	STABLE	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☒ ≤4:1						LB: GRASSLAND

Notes: BANKS COVERED W/ VEGETATION

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018												
X	No rain		0-0.5										X			
	Light rain	X	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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			
✓	Yes		Clear, natural line impressed on the bank	✓	Sediment deposition	✓	Sediment sorting
	No		Changes in the character of soil		Water staining	✓	Scour
			Shelving	X	Presence of flood litter/debris	✓	Observed/predicted flow events
			Vegetation matted down, bent, or absent		Destruction of terrestrial veg.		Abrupt change in plant community
			Leaf litter disturbed	X	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:

Notes:

Waters of the U.S. Data Sheet

Project: 1495/270 Managed Lanes		**Feature ID:** 137	**Stream Order:**
Date: 9/5/18	**State:** MD	**Photos:** 2518 - 2525	
Crew: MRS & TCL	**County:** Montgomery	**Last Flag Number:** 137 - Co	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	X RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing or flowing water throughout [illegible] Likely dries up most summers			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: N/A Downstream: Culvert Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 3' - 8'	X	Silts	X	Sands		Muck	RB: Forest
	Artificial (man-made)	Depth: 5" - 2'	X	Cobbles		Gravel		Other:	
X	Manipulated (man-altered)	Bank Erosion/stability: Stable		Bedrock	X	Concrete			
	Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1						LB: Forest
Notes:									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: August Year: 2018												
X	No rain	X	0-0.5										X			
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
X	Yes		Clear, natural line impressed on the bank	X	Sediment deposition		Sediment sorting
	No		Changes in the character of soil		Water staining	X	Scour
			Shelving		Presence of flood litter/debris	X	Observed/predicted flow events
		X	Vegetation matted down, bent, or absent	X	Destruction of terrestrial veg.		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:
Notes:					

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 14A	**Stream Order:**
Date: 4/11/18, 5/8/18	**State:** MD	**Photos:** 2518-2519, 287 & 288	
Crew: KSH/AGA	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
	○ RPW – Perennial (Flowing year round)		○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: standing water upstream of 495 shallow flowing downstream of 495

Hydrologic Connectivity –	Upstream: 14D	Downstream: Outside Study Area	Adjacent/Abutting: 14K

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-8'	☒ Silts	☐ Sands	☒ Muck		RB: Forest
☒ Artificial (man-made)	Depth: 1-6"	☐ Cobbles	☐ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Forest
☐ Other:	Moderate erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: Old name- W109M - Changed from perennial to intermittent

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													
● No rain	● 0-0.5	○	○	○	○	●	○	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet			

Month: March Year: 2018

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 14B	**Stream Order:**
Date: 6/5/18	**State:** MD	**Photos:** 2907 - 2908	
Crew: KJH, SLY	**County:** Mo	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Small channel Flowing during 2 site visits

Hydrologic Connectivity –	Upstream: culvert	Downstream: 14-D	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☒ Silts	☒ Sands	☐ Muck	RB: Mowed Grass
☒ Artificial (man-made)	Depth: 4-6"	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Mowed Grass
☐ Other:	stable	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018

◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Study Lanes ~~I-495 I-270 Montgomery County~~ City/County: Montgomery Sampling Date: 4/12/18 ~~11/20/14~~

Applicant/Owner: SHA State: MD Sampling Point: ~~10-C-WET~~ 14M-WET

Investigator(s): ~~KSH/ET~~ KSH, CCO Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 15

Subregion (LRR or MLRA): MLRA148 Lat: 39.016190 Long: -77.011200 Datum: WGS 84

Soil Map Unit Name: Glenelg silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Depressional cattail wetland inside sound barrier.

Photo 2534

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): 0"
Water Table Present?	Yes ✓	No ____	Depth (inches): 12"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 2098

0.9" of rain in past 7 Days

C
14 -WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~10 - E bbE~~

Tree Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 5')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 5')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Typha latifolia	90	Y	OBL
2. Toxicodendron radicans	3	N	FAC
3. Onoclea sensibilis	5	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	98 = Total Cover		

50% of total cover: 49 20% of total cover: 19.6

Woody Vine Stratum (Plot size: 3')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

C
14 - WET

SOIL

Sampling Point: ~~C - WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					silt loam	
2-6	10YR 5/1	60	7.5YR 5/8	40	C	M	silt loam	
6-14	2.5Y 3/1	95	7.5YR 5/6	5	C	M	s.lt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01Acres Human made? Yes Is wetland part of a wildlife corridor? NO or a "habitat island"? Yes

Adjacent land use Roadway, Forest Distance to nearest roadway or other development 13'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 14C

Latitude 39.01619 Longitude -77.01120

Prepared by: KJH Date 4/12/18

Wetland Impact:
Type Area

Evaluation based on:
Office Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Silver Spring/Montgomery Sampling Date: 6/5/18
Applicant/Owner: SHA State: MD Sampling Point: 14D-WET
Investigator(s): KJH, SLY Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): 148 Lat: 39.0164160 Long: -77.008293 Datum: WGS84
Soil Map Unit Name: Glenelg Silt loam, 3 to 8 percent slopes NWI classification: PSS
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
hikey created wetland behind school for educational purposes. Lots of rain in May. Total of 2.46" of rain 1 week prior to field visit.
Photos 2905 - 2906

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ✓ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 10"
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 14D-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. Salix nigra	50	Y	OBL
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 10')			
1. Cephalanthus occidentalis	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 10')			
1. Typha latifolia	70	Y	OBL
2. Persicaria longiseta	5	N	FAC
3. Lonicera japonica	5	N	FACU
4. Juncus effusus	10	N	FACW
5. Hibiscus moscheutos	5	N	OBL
6. Alisma subcordatum	2	N	OBL
7. Carex lurida	5	N	OBL
8.			
9.			
10.			
11.			
	102 = Total Cover		
50% of total cover: 51	20% of total cover: 20		
Woody Vine Stratum (Plot size: 10')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 14D-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					muck	
1-4	2.5Y 3/2	90	5YR 4/4	10	C	PL	clay	
4-12	2.5Y 4/2	70	5YR 4/6	30	C	PL	silty clay	
12-22	2.5Y 6/2	60	7.5YR 5/8	40	C	PL	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.9 Acres Human made? Y Is wetland part of a wildlife corridor? _____ or a "habitat island"? ✓

Adjacent land use School Distance to nearest roadway or other development 50ft.

Dominant wetland systems present PSS Contiguous undeveloped buffer zone present _____

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? headwaters

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 14D

Latitude 39.016469 Longitude -77.008293

Prepared by: SLY Date 9/2/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		7,9		Discharges groundwater to an intermittent channel.
Floodflow Alteration	✓		2,3,6,7,8,9,11,13,15,16		Treats runoff from adjacent school. Drains to int. channel. Just upslope from I-495
Fish and Shellfish Habitat	✓		5,8,9,10,16,		Fish blockage in intermittent channel downstream of wetland. 2' deep water in wetland.
Sediment/Toxicant Retention	✓		3,5,6,10,11,12,13,14,15,16	✓	Retains runoff from adjacent school Parking lots & rec fields
Nutrient Removal	✓		2,3,4,5,8,10,11,12,13,14	✓	Retains nutrients from adjacent rec fields
Production Export	✓		1,2,4,10,17,		Mix of herbs, shrubs & trees that provide wildlife food
Sediment/Shoreline Stabilization		✓	3,4,		Downstream channel is concrete lined, or incised.
Wildlife Habitat	✓		3,8,9,15,19,20,21	✓	Mix of open water, herbs, shrubs & trees that provide diverse habitat
Recreation		✓	5,7.		wetland location between school ballfields & I-495.
Educational/Scientific Value	✓		3,5,7,8,9,13,14,16	✓	Wetland appears to be man-made for educational purposes. Located behind school
Uniqueness/Heritage		✓	4,6,8,9,10,12,19		located on school property. Likely created for educational purposes
Visual Quality/Aesthetics	✓		1,2,3,6,8,9,11		
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 14E	**Stream Order:**
Date: 4/11/18 & 5/8/18	**State:** MD	**Photos:** 2527-2528, 289-290	
Crew: KH, AGA	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during multiple site visits			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert	Downstream: outside study Area	Adjacent/Abutting: 14I, 14J

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4 – 6'	☒ Silts	☐ Sands	☒ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1 – 10"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: minor	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: M-NCDPC stream restoration downstream of 495

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: March Year: 2018
● No rain	● 0-0.5	○	○	○	○	●	○	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ I-495/I-270 Managed Lane Study **Project No:** **Applicant/Owner:** **Investigators:** ~~WMM/DAL/RAD~~ KJH, CCO	**Date:** ~~7/27/2004~~ 4/12/18 **County:** Montgomery **State:** MD **Plot ID:** ~~W28M Plot 1~~ 14F - WET

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** wetland PEM
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area?	Yes	No	**Field Location:** ET 3/18/15
(If needed, explain on the reverse side)			

VEGETATION (USFWS Region No.1) Photos 529-531

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Ludwigia palustris Seedbox	H	OBL			
Typha latifolia – Dominant Species Broadleaf cattail	H	OBL			
Solanum dulcamara Bittersweet nightshade	WV	FAC-			
~~*Acer rubrum*~~ ~~Red maple~~	OS	FAC			
~~*Platanus occidentalis*~~ ~~American sycamore~~	OS	FACW-			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 80%	**FAC Neutral:** Yes **Numeric Index:**

Remarks:
Red maple seedlings present Trees growing outside wetland wetland boundary modified due to extensive Japanese honeysuckle.

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake or Tide Gauge ___ Aerial Photographs ___ Other X No Recorded Data	**Wetland Hydrology Indicators** **Primary Indicators** ___ Inundated ___ Saturated in Upper 12 Inches ___ Water marks ___ Drift Lines ___ Sediment Deposits ___ Drainage patterns in Wetlands **Secondary Indicators (2 or more required)** X Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data X FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations **Depth of Surface Water:** ___---___ inches **Depth to Free Water in Pit:** ___---___ inches **Depth to Saturated Soil:** ___---___ inches	

Remarks:
~~No surface/subsurface hydrology present~~

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

4/12/18

Project/Site: ~~Capital Beltway~~ I-495/I-270 Managed Lanes Study **Project No:** **Applicant/Owner:** **Investigators:** ~~WMM/DAL/RAD~~ KDH, CCB	**Date:** ~~7/27/2004~~ **County:** Montgomery **State:** MD **Plot ID:** ~~W28M Plot~~ 1 WF-WET

SOILS

Map Unit Name (Series and Phase): Glenelg silt loam, 8 to 15 percent slopes
Map Symbol: 2C **Drainage Class:** Well **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Typic Hapludults **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	A	2.5Y3/2	N/A	None	loam
1-6	B1	2.5Y5/2	10YR4/6	Common/distinct	loam
6-12+	B2	2.5Y6/2	10YR5/6	Abundant/distinct	Loamy sand

Hydric Soil Indicators:

___ **Histosol**
___ **Histic Epipedon**
___ **Sulfidic Odor**
___ **Aquic Moisture Regime**
___ **Reducing Conditions**
___ **Gleyed or Low Chroma Colors**
___ **Concretions**
___ **High Organic Content in Surface Layer in Sandy Soils**
___ **Organic Streaking in Sandy Soils**
___ **Listed on Local Hydric Soils List**
___ **Listed on National Hydric Soils List**
___ **Other (Explain in Remarks)**

Remarks:
B2 layer probably fill

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland? (Yes) ~~No~~
Wetland Hydrology Present?	(Yes)	~~No~~	
Hydric Soils Present?	Yes	No	

Remarks:
W-28- wetland inside cloverleaf @ I-495 & Route 29. Eastern portion appears to have been mowed recently; stubs of cattail, sedge present; red maple seedlings present. Some standing water, probably from earlier rainstorm.

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Roadway Distance to nearest roadway or other development 60'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 14 F

Latitude 39.01639 Longitude -77.01713

Prepared by: KJH Date 4/12/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-770 Managed Lanes Study		**Feature ID:** 14G	**Stream Order:**
Date: 4/12/18, 5/3/18	**State:** MD	**Photos:** 2532, 1572, 1574, 1575	
Crew: KJH, CCO	**County:** Mo.	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: shallow flows during site visit;			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Culvert outfall/rip-rap	Downstream: Outside Study Area	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-11'	☒ Silts	☒ Sands	☐ Muck	RB: Tall Grass
☐ Artificial (man-made)	Depth: 2"- 10"	☒ Cobbles	☒ Gravel	☒ Other: rip-rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☒ Concrete		LB: Tall Grass
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April Year: 2018
◉ No rain	◉ 0-0.5	○	○	○	○	○	◉	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1495-270 MANAGED WOODS City/County: MONTGOMERY Sampling Date: 9/4/18
Applicant/Owner: SHA State: MD Sampling Point: 14I-WET
Investigator(s): KJH, EVG Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 4%
Subregion (LRR or MLRA): 148 Lat: 39.01591253 Long: -77.01115519 Datum: WGS84
Soil Map Unit Name: Glen Elg silt loam, 3-8% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Photos 245-247

PFO surrounding small perennial channel (14E).
Wetland veg recently disturbed for stream restoration.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
SURFACE WATER IN WETLAND OUTSIDE OF PLOT

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 14I-WET

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	40	Y	FACW
2. Acer saccharinum	50	Y	FACW
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling Stratum (Plot size: 10')			
1. Ulmus americana	20	Y	FACW
2. Catalpa bignonioides	5	Y	FACU
3.			
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		

Shrub Stratum (Plot size: 10')			
1. Malus angustifolia	10	Y	VPL
2. Fraxinus pennsylvanica	2	N	FACW
3.			
4.			
5.			
6.			
	12 = Total Cover		
50% of total cover: 6	20% of total cover: 2.4		

Herb Stratum (Plot size: 10')			
1. PERSICARIA VIVIPERIFORMIS	15	Y	OBL
2. Toxicodendron radicans	15	Y	FAC
3. Impatiens capensis	5	N	FACW
4. Parthenocissus quinquefolia	5	N	FACU
5. Ampelopsis brevipedunculata	2	N	UPL
6. Hedera helix	2	N	FACU
7. Bidens frondosa	5	N	FACW
8.			
9.			
10.			
11.			
	49 = Total Cover		
50% of total cover: 24.5	20% of total cover: 9.8		

Woody Vine Stratum (Plot size: 10')			
1. Toxicodendron radicans	30	Y	FAC
2.			
3.			
4.			
5.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 141-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5YR 3/1	70	5YR 3/4	30	C	M, PL	SILT LOAM	
4-9	2.5Y 3/2	100					SILTY CLAY LOAM	
9-24	2.5Y 4/1	60	5YR 5/6	40	C	M	CLAY	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ✓ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.5 Acres Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Parkland, Roadway Distance to nearest roadway or other development 22'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? headwaters

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 14I

Latitude 39.01541 Longitude -77.011155

Prepared by: KJH Date 9/4/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		7, 9, 13	✓	Discharges groundwater to an intermittent & perennial stream.
Floodflow Alteration	✓		2, 4, 5, 6, 9, 11, 13, 15 16, 17, 18		treats runoff from 495 & Blaire high school.
Fish and Shellfish Habitat	✓		8, 15, 16, 17		Extensive piping DS of Park, Limited fish habitat.
Sediment/Toxicant Retention	✓		2, 3, 4, 5, 8, 9, 10, 13, 14 16	✓	Retains run off from Blaire high school, 495 & parkland.
Nutrient Removal	✓		3, 4, 5, 7, 10, 14	✓	Retains nutrients from ddj rec. fields,
Production Export	✓		1, 2, 4, 10,		mix of herbs, shrubs & trees
Sediment/Shoreline Stabilization	✓		1, 2, 3, 6, 7, 9, 14, 4	✓	Perennial & Intermittent channels flow through wetland.
Wildlife Habitat	✓		3, 5, 8, 10, 15, 17, 19		mix of herbs, shrubs, trees.
Recreation	✓		1, 5, 7, 10, 11, 12		Located in Rec. Park
Educational/Scientific Value		✓	5, 8, 9, 11, 15		Located in Rec Park, Just south of Blaire HS & 495. Not high quality.
Uniqueness/Heritage		✓	7, 8, 9, 11, 16, 17, 22, 31		Not unique, but still provides many functions
Visual Quality/Aesthetics		✓	6, 8, 9, 10, 11, 12		Not high quality
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 14J	Stream Order:
Date: 9/4/18	State: MD	Photos: 4155-4156	
Crew: KSH, ET	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water during field visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 14I	Downstream: 14E	Adjacent/Abutting: 14I

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☒ Silts	☒ Sands	☒ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	◉	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: MO. Sampling Date: 9/4/18
Applicant/Owner: SHA State: MD Sampling Point: 14K-WET
Investigator(s): KJH, ET Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR or MLRA): 148 Lat: 39.01526133 Long: -77.00738259 Datum: WGS84
Soil Map Unit Name: Glenelg silt loam, 3-8 % slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Photo 4159 - 4161
vernal pool in northern part of wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Surface water & saturation within wetland outside plot point

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 14 K-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 20')			
1. Quercus palustris	60	Y	FACW
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 20')			
1. Quercus palustris	5	Y	FACW
2. Quercus rubra	10	Y	FACU
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 5')			
1. Fraxinus pennsylvanica	5	N	FACW
2. Cyperus strigosus	20	Y	FACW
3. Persicaria hydropiperoides	15	N	OBL
4. Leersia virginica	50	Y	FACW
5. Ampelopsis glandulosa	10	N	UPL
6. Scirpus polyphyllus	2	N	OBL
7. Juncus tenuis	5	N	FAC
8.			
9.			
10.			
11.			
	107 = Total Cover		
50% of total cover: 53.5	20% of total cover: 21.4		
Woody Vine Stratum (Plot size: 20')			
1. Ampelopsis glandulosa	5	Y	UPL
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 14K-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	95	5YR 4/4	5	C	M	Sandy loam	
2-6	10YR 5/2	85	7.5YR 5/8	15	C	M	Sandy loam	
6-12	10YR 6/2	80	7.5YR 5/8	20	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.21 Acres Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Forested, Roadway Distance to nearest roadway or other development 24'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 14K

Latitude 39.01526 Longitude -77.007382

Prepared by: KJH Date 9/4/19

Wetland Impact:
Type Area

Evaluation based on:
Office Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 15A	**Stream Order:**
Date: 4/12/18	**State:** MD	**Photos:** 2537	
Crew: KJH, CCO	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water throughout channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert under I-495	Downstream: culvert under 495	Adjacent/Abutting: 15B (waters)

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'-15'	☒ Silts	☒ Sands	☒ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1"-10"	☒ Cobbles	☒ Gravel	☒ Other: rip-rap	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: March Year: 2018
◉ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ◉ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		○ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 15B	**Stream Order:**
Date: 4/12/18	**State:** MD	**Photos:** 2536	
Crew: KJH, CCO	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Standing water 1-12" Deep

Hydrologic Connectivity –	Upstream: Culvert Outfall	Downstream: 15A (Watts)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'-10'	☒ Silts	☒ Sands	☒ Muck	RB: Scrub-shrub
☐ Artificial (man-made)	Depth: 1"-12"	☒ Cobbles	☒ Gravel	☒ Other: rip-rap	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Scrub-shrub
☐ Other:	Moderate erosion	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: March Year: 2018
● No rain	● 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ● -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		○ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: (*check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 15C	**Stream Order:**
Date: 5/9/18	**State:** MD	**Photos:** 294 & 295	
Crew: KDH, KH	**County:** Mo	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water throughout channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert under 495	Downstream: 15D (Sligo Creek)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-8'	☑ Silts	☑ Sands	☑ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1"-10"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: Apr.1 Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane study		**Feature ID:** 15D	**Stream Order:**
Date: 5/9/18	**State:** MD	**Photos:** 296 - 298	
Crew: KDH, KH	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing year round - Sligo Creek			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study Area	Downstream: Outside Study Area	Adjacent/Abutting: 15C & 15E

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 20 - 30'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 4" - 15"	☒ Cobbles	☒ Gravel	☒ Other: Riprap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 15E	**Stream Order:**
Date: 5/9/18	**State:** MD	**Photos:** 307	
Crew: KJH, KH	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	● Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Majority of channel is dry drains dry stormwater pond. Natural channel shape

Hydrologic Connectivity –	Upstream: culvert to dry pond	Downstream: 15D (Sligo Creek)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-5'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-5"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: minor erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: April Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 15F	**Stream Order:** 1st
Date: 5/7/19	**State:** Maryland	**Photos:** Upstream, downstream	
Crew: RS, SH	**County:** Montgomery	**Last Flag Number:** 15F-2A/B	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study area	Downstream: 15D	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 5'	☑ Silts	☑ Sands	☐ Muck	RB: Mowed lawn
☐ Artificial (man-made)	Depth: 1'	☑ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Mowed lawn
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April	Year: 2019
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes study		**Feature ID:** 16A	**Stream Order:**
Date: 5/10/18	**State:** MD	**Photos:** 0314-0315	
Crew: KJH, CVB	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing year round. - Large perennial stream (Forest Glen Creek)			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: Outside Study Area + 16G | Downstream: 19K (Rock Creek) | Adjacent/Abutting: 16B, 16C, 16D

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 20-30'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 4"-1'	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate erosion	☒ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
◉ No rain	◉ 0-0.5
○ Light rain	○ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI **Month:** April **Year:** 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 16B	**Stream Order:**
Date: 5/10/18	**State:** MD	**Photos:** 316-317	
Crew: KJH, CVB	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Seep flowing out of small HDPE pipe, water stained leaves in channel.

Hydrologic Connectivity –	Upstream: Small drainage pipe	Downstream: 16A	Adjacent/Abutting: NA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	☒ Silts	☐ Sands	☒ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														Month: April Year: 2018
◉ No rain	◉ 0-0.5	○	○	○	○	○	◉	○	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495 / I-270 Managed Lanes Study		**Feature ID:** 16C	**Stream Order:**
Date: 5/10/18	**State:** MD	**Photos:** 318	
Crew: KJH, CVB	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing water - 8'-10' wide			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert	Downstream: 16A	Adjacent/Abutting: NA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 8-10'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 2" - 10"	☒ Cobbles	☒ Gravel	☒ Other: rip-rap	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☒ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Incised channel, Gabion baskets falling apart					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: April Year: 2018													
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 16D	**Stream Order:**
Date: 5/10/18	**State:** MD	**Photos:** 3193320	
Crew: KSH, CVB	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water, some flow coming out of pipe			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert	Downstream: 16A	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☒ Silts	☐ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: Concrete lined channel					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April Year: 2018
◉ No rain	◉ 0-0.5	○	○	○	○	○	◉	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 16E	**Stream Order:**
Date: 5/15/18	**State:** MD	**Photos:** 321	
Crew: KJH, KH	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during site visit - shallow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Culvert	Downstream: Culvert	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-8'	☒ Silts	☒ Sands	☒ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: minor erosion	☐ Bedrock	☐ Concrete		LB: Forest / Mowed Lawn
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: April Year: 2018
◉ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4 Severe Drought	○ -3 ○ -2 Moderate Drought
○ Light rain	○ 0.5-1		◉ -1 ○ 0 ○ 1 Normal
○ Heavy Rain	◉ >1		○ 2 ○ 3 Moderately Wet ○ 4 ○ 5 ○ 6 Severely Wet

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project:	I-495/I-270 Managed Lanes Study		**Feature ID:**	16F	**Stream Order:**
Date:	5/15/19	**State:** MD	**Photos:**	322-324	
Crew:	KJH, KH	**County:** Mo.	**Last Flag Number:**	NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Standing water - Rained previous night - 0.57"

Hydrologic Connectivity –	Upstream: concrete channel	Downstream: 16G	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6-10'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-3"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: originates at end of broken up concrete channel that recieves run-off from culvert outfall

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: Apr; 1 Year: 2018
◉ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	◉ >1	◉ -1 ○ 0 ○ 1	Normal
		○ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 16G	**Stream Order:**
Date: 5/15/18, 6/6/18	**State:** MD	**Photos:** 325, 326, 2409, 2410	
Crew: KSH, KH, ET	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Upstream segment is concrete lined downstream segment is naturalized channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert	Downstream: 16A (Forest Glen Creek)	Adjacent/Abutting: 16F, 16I, 16J, 16K

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5-20'		☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-24"		☒ Cobbles	☒ Gravel	☒ Other: rip-rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion		☒ Bedrock	☒ Concrete		LB: Forest
☐ Other:			Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: originates at large culvert, Piped under seminary Rd & CSX tracks.						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												
		Month: May **Year:** 2018												
● No rain	○ 0-0.5	○	○	○	○	○	○	●	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris		☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent		☐ Destruction of terrestrial veg.		☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Montgomery Sampling Date: 5/24/19
Applicant/Owner: SHA State: MD Sampling Point: 16H-WET
Investigator(s): KJH, SJF Section, Township, Range:
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR or MLRA): MLRA 148 Lat: 39.01478380 Long: -77.04353628 Datum: WGS84
Soil Map Unit Name: Glenelg-Urban Land Complex NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
photo 2785
upland photo - 2786

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 6
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
4" of rain previous week

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W,H-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 10')			
1. Typha latifolia	40	Y	OBL
2. Persicaria hydropiper	40	Y	OBL
3. Persicaria maculosa	30	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 16H - WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y 3/1	100					clay loam	
1-6	2.5Y 3/1	80	5YR 4/6	20	C	M,PL	clay loam	
6-12	2.5Y 4/3	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Roadway, Residential Distance to nearest roadway or other development 30'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 16H

Latitude 39.0142 Longitude -77.0435

Prepared by: KJH Date 5/24/18

Wetland Impact:
Type Area

Evaluation based on:
Office Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 16I	**Stream Order:**
Date: 6/13/18	**State:** MD	**Photos:** 2952 & 2953	
Crew: RJH, SJF	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: outside study Area	Downstream: 16G	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-12'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1"-12"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☒ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May Year: 2018
◉ No rain	○ 0-0.5	○ -6 ○ -5 ○ -4 ○ -3 ○ -2 ○ -1 ○ 0 ◉ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6	
○ Light rain	◉ 0.5-1	Severe Drought / Moderate Drought / Normal / Moderately Wet / Severely Wet	
○ Heavy Rain	○ >1		

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 165	**Stream Order:**
Date: 6/13/18	**State:** MD	**Photos:** 2962 & 2963	
Crew: KJH, SJF	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		◉ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Majority of channel is dry 8" deep pool at outfall where channel begins			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: culvert outfall	Downstream: 166	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-6'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-8"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor erosion	Side slope: ☒ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: Weak bed & bank in center portion of feature					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: May Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 16K	**Stream Order:**
Date: 8/1/18	**State:** MD	**Photos:** 2029 - 2030	
Crew: KJH, CAS	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ◉ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
	○ RPW – Perennial (Flowing year round)		○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No Flow during site visit. <1" of rain in past week

Hydrologic Connectivity –	Upstream: outside study Area	Downstream: 16G	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-5'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 3-6"	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☒ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Severe erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Feature originates at rip-rap draining roadway. Deeply incised gully.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: June Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Mo. Sampling Date: 8/30/18
Applicant/Owner: SHA State: MD Sampling Point: 16L-UPL
Investigator(s): KSH, AGA Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 3%
Subregion (LRR or MLRA): 148 Lat: 39.013733334 Long: -77.05913652 Datum: WGS84
Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Area recieves runoff & deposition from 495, similar appearance to wetland 16L, however hydric soil indicators are not present
Photos 4151 & 4152

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 16L-VPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10' Radius)			
1. Acer negundo	90	Y	FAC
2.			
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot size: 10' radius)			
1. Acer negundo	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 10' Radius)			
1. Lindera benzoin	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 10 Radius)			
1. Lindera benzoin	5	Y	FAC
2. Toxicodendron radicans	2	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	7 = Total Cover		
50% of total cover: 3.5	20% of total cover: 1.4		
Woody Vine Stratum (Plot size: 10' Radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)
Sparsely vegetated.

SOIL

Sampling Point: 16L-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					SiH loam	
12-24	7.5YR 4/3	70	5YR 5/6	30	C	M	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

Alpha alpha strips tested negative in late July when soils were saturated

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Mo. Sampling Date: 8/30/18
Applicant/Owner: SHA State: MD Sampling Point: WL-WET
Investigator(s): KJH, AGA Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 3%
Subregion (LRR or MLRA): 148 Lat: 39,01380522 Long: -77.05945279 Datum: WGS84
Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Wetland recieves runoff from 495. Drainage patterns & sediment deposition from 495 observed throughout wetland. Photos 4149 & 4150

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____ No ✓	Depth (inches): ____
Water Table Present?	Yes ____ No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Surface water observed in wetland in late July. Small Ponded area with frogs within wetland in late July.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: IGL-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10' Radius)			
1. Acer negundo	80	Y	FAC
2. Platanus occidentalis	10	N	FACW
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot size: 10' Radius)			
1. Ulmus americana	45	Y	FACW
2.			
3.			
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Shrub Stratum (Plot size: 10' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 10' Radius)			
1. Lindera benzoin	2	N	FAC
2. Fraxinus pennsylvanica	5	Y	FACW
3. Euonymus fortunei	2	N	UPL
4. Ampelopsis brevipedunculata	5	Y	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	14 = Total Cover		
50% of total cover: 7	20% of total cover: 2.8		
Woody Vine Stratum (Plot size: 10' Radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Sparsely vegetated wetland

SOIL Sampling Point: 16L-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	90	10YR 4/3	10	C	M	Silt Loam	
6-17	10YR 4/4	90	2.5Y 4/2	10	D	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ✓ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ROCK refusal

Depth (inches): 17+

Hydric Soil Present? Yes ✓ No ___

Remarks:

Sediment deposition & drainage patterns throughout wetland - drainage from 495.

Wetland Function-Value Evaluation Form

Total area of wetland 0.14 Acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 34'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 16L

Latitude 39.0138 Longitude -77.05945

Prepared by: KJH Date 8/30/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 Managed Lanes Study 5/24/18

Project/Site: ~~I-495 IRVM - Montgomery County~~ City/County: Montgomery Sampling Date: ~~11/18/2014~~

Applicant/Owner: SHA State: MD Sampling Point: ~~07-B-WET~~ 17-A-WET

Investigator(s): ~~PSM/MDS~~ KSH, SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): CONCAVE Slope (%): 0-1

Subregion (LRR or MLRA): MLRA 148 Lat: 39.00688 Long: -77.07600 Datum: NAD 83

Soil Map Unit Name: BRINKLOW-BLOCKTOWN CHANNERY SLT LOAM 15-25% SLOPE NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [X]

Are Vegetation [ ], Soil [X], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:

Disturbed soils with weak redox

Photo 2789 Wildlife value - Toad tadpoles, Red-winged black birds nesting

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [X] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [X] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 5"
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

17-A-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~07-B-WET~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 50'x6')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 50'x6')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 50'x6')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 50'x6')			
1. BROAD-LEAF CAT-TAIL (TYPHA LATIFOLIA)	59	YES	OBL
2. LAMP RUSH (JUNCUS EFFUSUS)	2	No	FACW
3. PINK WEED (PERSICARIA PENSYLVANICA)	1	NO	FACW
4. ROUGH BARNYARD GRASS (ECHINOCHLOA MURICATA)	3	NO	FACW
5. SEASIDE CLUB-RUSH (SCHOENOPLECTUS ROBUSTUS)	35	YES	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: 50'x6')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (Include photo numbers here or on a separate sheet.)

US Army Corps of Engineers

Eastern Mountains and Piedmont – Version 2.0

17-A-WET

SOIL

Sampling Point: ~~07-B-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y4/2	95	7.5YR3/4	5	C	M	cl	
12-24	2.5Y4/2	98	7.5YR3/4	2	C	M	sil	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ⊗ No ○

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Acres Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"?

Adjacent land use Roadway Distance to nearest roadway or other development 7'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17A

Latitude 39.20688 Longitude -77.27600

Prepared by: KSH Date 5/24/18

Wetland Impact:
Type Area

Evaluation based on:
Office Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1495/1270 Managed Lanes Study City/County: Montgomery Sampling Date: 8/28/18
Applicant/Owner: SHA State: MD Sampling Point: 17-AA Wet
Investigator(s): KJH/SLG Section, Township, Range:
Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): concave Slope (%): 0-3%
Subregion (LRR or MLRA): MLRA 148. Lat: 39.008933 Long: -77.066106 Datum: WGS 84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Large PFO Wetland with numerous hillslope seeps
Photos 2496-2502 UAV Photos 2497-2510

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): 0
Water Table Present?	Yes ✓	No ____	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): C

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Note: Surface water & high water table present within wetland (south), outside of plot point.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: FAA-wet

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 5'x10')			
1. Acer negundo	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5'x10')			
1. Fraxinus pennsylvanica	20	Y	FACW
2. Lycopus virginicus	5	N	OBL
3. Persicaria hydropiperoides	15	Y	OBL
4. Persicaria lapathifolia	5	N	FAC
5. Carex stricta	2	N	FACW
6. Persicaria arifolia	2	N	FAC
7. Microstegium vimineum	10	N	FAC
8.			
9.			
10.			
11.			
	59 = Total Cover		
50% of total cover: 29.5	20% of total cover: 11.8		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)

Note! Veg in western part of wetland dominated by Arrow Arrum & halberdleaf tear thump - higher quality

SOIL Sampling Point: 17A-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y3/1	95	5YR4/4	5	C	M	silt loam	some mica deposits
6-11	2.5Y3/2	80	5YR3/4	20	C	PL,M	silt loam	mica deposits
11-19	2.5Y5/3	70	7.5YR5/8	30	C	M	silt loam	mica deposits
19-24	2.5Y4/2	70	5YR4/6	30	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.86 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 24'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Remnant Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17AA

Latitude 39.0089 Longitude -77.066106

Prepared by: KJH Date 8/28/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		7,8,10,13	X	Several hillslope seeps in wetland
Floodflow Alteration	X		3,4,5,6,9,11,15,17,18		Drains to intermittent stream. Recieves runoff from surrounding upland forest & Adj. community
Fish and Shellfish Habitat		X	2		No open water within wetland
Sediment/Toxicant Retention	X		3,4,9,10,13,16		Recieves runoff from surrounding upland forest & adj. community.
Nutrient Removal	X		3,4,5,7,8,9,10,11		Recieves runoff from adj community lawns,
Production Export	X		1,2,4,7,8,9,10	X	Mix of trees, shrubs & wet herbaceous species.
Sediment/Shoreline Stabilization		X	1,3,4,6,		Drains to intermitent channel.
Wildlife Habitat	X		3,4,5,7,8,9,13,15,16 19,20,	X	American toad & white tail deer observed in wetland.
Recreation		X	1,5,7,		surrounded by 495 & Private properties
Educational/Scientific Value		X	2,3,4,5,6,9,11,13		" "
Uniqueness/Heritage	X		1,4,8,10,11,12,13, 16,17,19,22,27,31	X	High quality relatively large wetland in highly developed area. - spring seeps
Visual Quality/Aesthetics	X		1,3,7,8,9,11,12	X	High quality wet herbaceous plants- arrow arrum
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: ~~I-495 IRVM - Montgomery County~~ I-495/I-270 Managed Lanes Study		**Feature ID:** ~~07-C~~ 17B	**Stream Order:** 1
Date: ~~11/19/14~~ 6/6/18	**State:** MD	**Photos:** ~~07-C~~ 2911 & 2912	
Crew: ~~PSM/MBS~~ KSH, ET	**County:** Montgomery	**Last Flag Number:** ~~07-C-7A&7B~~ NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		◉ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: ~~0.5-1.0" rainfall event two days prior~~, no flow observed. This channel receives only stormwater from uplands, and does not convey groundwater.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: None	Downstream: Rock Creek (19K)	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'-4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 0.75'	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Eroding	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: This channel serves as a stormwater drainageway, and it's banks are incised due to concentrated stormwater flows.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: ~~October~~ May	Year: 2018 ~~2014~~
◉ No rain	◉ 0-0.5	○ ○ ○ ○ ○ ○ ○ ◉ ⊗ ○ ○ ○ ○		
○ Light rain	⊗ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6		
○ Heavy Rain	⊗ >1	Severe Drought / Moderate Drought / Normal / 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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 17-BB	Stream Order:
Date: 8/28/18	State: MD	Photos: 2503-2504	
Crew: KSH, SLY	County: MO	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: standing water & shallow flow during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert outfall	Downstream: 19K (Rock Creek)	Adjacent/Abutting: 17AA & 12CC

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-10'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-10"	☒ Cobbles	☒ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: TWO PFO wetland drains to channel right before it flows under I495					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	◉	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 17C	**Stream Order:**
Date: 8/14/2019	**State:** MD	**Photos:** 2390 - 2393, 2395	
Crew: KJH, AGA	**County:** Montgomery	**Last Flag Number:** N/A [Not flagged]	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
	○ RPW – Perennial (Flowing year round)		

Describe rational for hydrologic class: Drains a potential wetland outside of the study area, located within an active floodplain

Hydrologic Connectivity – Upstream: Outside of study area Downstream: 19K (Rock Creek) Adjacent/Abutting: potential wetland outside of study area

Feature Description: *(check all that apply)* channel was dry within study area, but had hydrology upstream. Ponded at outfall.

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2.5-5'	☒ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-2"	☐ Cobbles	☐ Gravel	☒ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Clay	LB: Forest
☐ Other:	Moderately Stable	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	○	○	○	⊗	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery Sampling Date: 8/28/18
Applicant/Owner: SHA State: MD Sampling Point: 17cc-wet
Investigator(s): KJH/SLY Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): MLRA Lat: 39.086655 Long: -77.067893 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Wetland behind Soundwall
Photos: 2505-2506 VIC-2507
drains to int. channel (17BB)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): 0
Water Table Present?	Yes ✓	No ____	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17cc Wet

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	Y	FAC
2. Quercus rubra	30	Y	FACU
3. Liriodendron tulipifera	10	N	FACU
4.			
5.			
6.			
	90	= Total Cover	

50% of total cover: 45 20% of total cover: 18

Sapling Stratum (Plot size: 15' R)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 10' R)			
1. Carya tomentosa	5	Y	FACU
2. Viburnum prunifolium	5	Y	FACU
3. Acer negundo	5	Y	FAC
4.			
5.			
6.			
	15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3

Herb Stratum (Plot size: 10' R)			
1. Persicaria hydropiperoides	60	Y	OBL
2. Fraxinus pennsylvanica	5	N	FACW
3. Toxicodendron radicans	2	N	FAC
4. Ampelopsis brevipedunculata	5	N	UPL
5. Ligustrum vulgare	2	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	74	= Total Cover	

50% of total cover: 37 20% of total cover: 14.8

Woody Vine Stratum (Plot size: 10' R)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	7	x 2 =	14
FAC species	57	x 3 =	171
FACU species	50	x 4 =	200
UPL species	5	x 5 =	25
Column Totals:	179 (A)		470 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 17cc-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y3/1	70	5YR3/4	30	C	PL,M	Silt loam	
7-11	2.5Y4/2	70	5YR3/4	30	C	PL,M	Silt loam	
11-24	10YR4/4	70	5YR4/6	30	C	PL,M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.17 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Upland Forest, Roadway, Residential Distance to nearest roadway or other development 15'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Remnant floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17CC

Latitude 39.00665 Longitude -77.06789

Prepared by: KJH Date 8/28/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration	X				
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-270/I495 Managed Lanes Study		**Feature ID:** 17D	**Stream Order:**
Date: 8/14/2018	**State:** MD	**Photos:** 2398 - 2399	
Crew: KJH, AGA	**County:** Montgomery	**Last Flag Number:** N/A [NOT FLAGGED]	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Steady flow during visit. Drains large PFO outside study area

Hydrologic Connectivity –	Upstream: outside of study area	Downstream: 19K (Rock Creek)	Adjacent/Abutting: PFO outside study Area

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-4"	☐ Cobbles	☐ Gravel	☒ Other: Riprap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderately unstable	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Riprap placed at confluence with Rock Creek

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
☒ No rain	☒ 0-0.5	○	○	○	○	○	○	○	○	○	○	☒	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 17DD	Stream Order:
Date: 8/28/18	State: MD	Photos: 2508-2509	
Crew: KDH/SLY	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: shallow flow during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Spring	Downstream: 19K (Rock Creek)	Adjacent/Abutting: 17 CC

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-5'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-3"	☒ Cobbles	☒ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability: stable	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: Originates at spring seep. Flows into culvert under 495.					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	◉	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Montgomery Sampling Date: 8/14/2018
Applicant/Owner: SHA State: MD Sampling Point: 17E-wet
Investigator(s): KJH, AGA Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.010393 Long: -77.065930 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM (CfA), 0-3% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Photos 2401 - 2403
Photo 2404 is upland photo

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17E-WET

Tree Stratum (Plot size: 5x10' plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		

50% of total cover: 30 20% of total cover: 12

Sapling Stratum (Plot size: 5x10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 5x10')			
1. Lindera benzoin	5	Y	FAC
2. Fraxinus pensylvanica	2	Y	FACW
3.			
4.			
5.			
6.			
	7 = Total Cover		

50% of total cover: 3.5 20% of total cover: 1.4

Herb Stratum (Plot size: 5x10')			
1. Lysimachia nummularia	10	Y	FACW
2. Persicaria longiseta	5	Y	FAC
3. Evonymus fortunei	2	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	17 = Total Cover		

50% of total cover: 8.5 20% of total cover: 3.4

Woody Vine Stratum (Plot size: 5x10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 17E-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 4/3	80	7.5YR 4/4	20	C	M	Silt Loam	
12-20	10YR 4/4	80	7.5YR 4/4	20	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ✓ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.29 acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 206'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17E

Latitude 39.01039 Longitude -77.065930

Prepared by: KJH Date 8/14/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			small floodplain depression.
Floodflow Alteration	X				
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495 / I-270 Managed Lanes Study		**Feature ID:** 17F	**Stream Order:**
Date: 8/15/18	**State:** MD.	**Photos:** 2406 & 2407	
Crew: KJH, SLY	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Deep pools & flowing during site visit. Fish in channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: culvert outfall	Downstream: 19K (Rock Creek)	Adjacent/Abutting: 17G, 17H, 17J

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-10'	☒ Silts	☒ Sands	☒ Muck	RB: Hedgerow
☐ Artificial (man-made)	Depth: 4" - 15"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Hedgerow
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: MNCPPC stream restoration along channel - log vanes					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Mo. Sampling Date: 8/30/18
Applicant/Owner: SHA State: MD Sampling Point: 17FF - Wet
Investigator(s): KJH, AGA Section, Township, Range:
Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): concave Slope (%): 0-2%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.011904 Long: -77.064516 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
photos 4153 & 4154
Floodplain wetland that connects to a spring wetland (17K).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 22"
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Saturation & surface water observed within wetland - west of plot point.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17FF-Wet

Tree Stratum (Plot size: 20' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	Y	FAC
2. Acer negundo	20	Y	FAC
3. Ulmus americana	30	Y	FACW
4.			
5.			
6.			
	100	= Total Cover	

50% of total cover: 50 20% of total cover: 20

Sapling Stratum (Plot size: 20' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: ____ 20% of total cover: ____

Shrub Stratum (Plot size: 20' radius)			
1. Acer negundo	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 20' Radius)			
1. Lysimachia nummularia	80	Y	FACW
2. Fraxinus pennsylvanica	20	N	FACW
3. Toxicodendron radicans	5	N	FAC
4. Amphidopsis brevipedunculata	20	N	UPL
5. persicaria hydropiperoides	5	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	130	= Total Cover	

50% of total cover: 65 20% of total cover: 26

Woody Vine Stratum (Plot size: 20' Radius)			
1. Toxicodendron radicans	10	Y	FAC.
2.			
3.			
4.			
5.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

multiple dead Green ash trees w/i plot

SOIL

Sampling Point: 1777-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	80	5YR 3/4	20	C	M+PL	Silt Loam	
6-24	2.5Y 5/2	70	5YR 4/4	30	C	M+PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.16 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17FF

Latitude 39.0119 Longitude -77.0645

Prepared by: KJH Date 8/30/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				Large Floodplain wetland - Rock Creek
Floodflow Alteration	X				
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation	X				Adjacent Paved trail in Parkland
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Mo. Sampling Date: 8/22/18
Applicant/Owner: SHA State: MD Sampling Point: 17GG-WET
Investigator(s): KJH, RL Section, Township, Range:
Landform (hillslope, terrace, etc.): Toe of embankment Local relief (concave, convex, none): Concave Slope (%): 2%
Subregion (LRR or MLRA): 148 Lat: 39.00670478 Long: -77.07519885 Datum: WGS 84
Soil Map Unit Name: Glenelg silt loam, 8-15% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)
Are Vegetation ____, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ✓, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Depression area surrounded by silt fence.
Soils consist of disturbed/problematic fill material.
Soils considered hydric by MDE based on veg & hydrology (14 Day Ponded/Saturation Rule)
Photos 2483-2486

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): 0"
Water Table Present?	Yes ____	No ✓	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
0.45" Previous day
0.63" of rain in past 7 days
Agency Meeting - 7/27/18
Note - ~10" of standing water observed on 7/27/18.
~7.9" of rainfall 1 week prior to 7/27/18.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17GG-WET

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix alba	40	Y	FACW
2. Fraxinus pennsylvanica	15	N	FACW
3. Platanus occidentalis	50	Y	FACW
4.			
5.			
6.			
	105	= Total Cover	
50% of total cover: 52.5	20% of total cover: 21		

Sapling Stratum (Plot size: 10')			
1. Fraxinus pennsylvanica	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
	15	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3		

Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 10')			
1. Carex gravi	2	N	FACW
2. Schoenoplectus robustus	5	N	OBL
3. Persicaria longiseta	5	N	FAC
4. Fraxinus pennsylvanica	1	N	FACW
5. Phragmites australis	20	Y	FACW
6. Rumex crispus	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	38	= Total Cover	
50% of total cover: 19	20% of total cover: 7.6		

Woody Vine Stratum (Plot size: 10')			
1. Ampelopsis brevipedunculata	5	Y	VPL
2. Euonymus fortunei	2	Y	VPL
3.			
4.			
5.			
	7	= Total Cover	
50% of total cover: 3.5	20% of total cover: 1.4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 17GG-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Silt loam	
5-16	10YR 4/3	100					Loam	Mixed in orange/red fill material
16-22	10YR 4/1	90	5YR 4/4	10	C	M, PL	Loam	Mixed in orange/red fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soils consist of disturbed/problematic fill material and are considered hydric by MDE based on veg & hydrology. Depression is likely ponded or saturated within upper 12" of soil profile for 14 or more consecutive days based on MDE guidance.

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 Acres Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? Y

Adjacent land use Roadway, Industrial Distance to nearest roadway or other development 30'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? Y If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17GG

Latitude 39.0067 Longitude -77.07519

Prepared by: KJH Date 8/22/18

Wetland Impact:
Type Area

Evaluation based on:
Office Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				Man made depressional wetland recieves runoff from adj roadway / Industrial Area
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes Study City/County: Montgomery Sampling Date: 8/15/18
Applicant/Owner: SHA State: MD Sampling Point: 17K-WET
Investigator(s): KJH/SLY Section, Township, Range:
Landform (hillslope, terrace, etc.): DEPRESSION Local relief (concave, convex, none): CONCAVE Slope (%): 2
Subregion (LRR or MLRA): MLRA 148 Lat: 39.011918 Long: -77.064550 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Photos: 2415-2416 Seep wetland. Diverse veg. Disturbed soils - fill material in soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1"
Water Table Present?	Yes ✓	No ____	Depth (inches): 3"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17K-wet

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	50	Y	FAC
2. Acer rubrum	40	Y	FAC
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		

Sapling Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 10')			
1. Fraxinus pennsylvanica	20	Y	FACW
2. Platanus occidentalis	10	Y	FACW
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Herb Stratum (Plot size: 5')			
1. Sagittaria latifolia	60	Y	OBL
2. Boehmaria cylindrica	10	N	FACW
3. Lysimachia nummularia	60	Y	FACW
4. Tracaulon arifolium	5	N	OBL
5. Cinna arundinacea	15	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	150 = Total Cover		
50% of total cover: 75	20% of total cover: 30		

Woody Vine Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 7K-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 3/2	80	7.5YR 4/4	20	C	M/PL	clay-loam	
4-10	2.5Y 3/2	80	10YR 5/8	20	C	M	clay	some fill material (gravel) present
10-15	2.5Y 5/4	100	—	—	—	—	sandy loam	mixed in fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Disturbed soils. Fill material mixed in profile from 4-15" below surface.

Wetland Function-Value Evaluation Form

Total area of wetland 0.21 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 117'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17K

Latitude 39.01191 Longitude -77.064550

Prepared by: KJH Date 8/15/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics	X				
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1495/1270 Managed Lanes Study City/County: Montgomery Sampling Date: 8/15/18
Applicant/Owner: SHA State: MD Sampling Point: 17L-WET
Investigator(s): KJH/SLY Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.009043 Long: -77.067301 Datum: WGS 84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES. NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓
Are Vegetation ✓, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Several green ash trees growing along edge of wetland were cut down and placed in wetland.
photos: 2417 Floodplain depression
Upland photo 2418

HYDROLOGY Feature changed to PFO based on guidance from MDE on 11/7/18.

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17L-WET

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Persicaria hydropiper	30	Y	OBL
2. Carex gravi	2	N	FACW
3. Lysimachia nummularia	50	Y	FACW
4. Fraxinus pennsylvanica	2	N	FACW
5. Carex crinita	50	Y	OBL
6. Boehmaria cylindrica	5	N	FACW
7.			
8.			
9.			
10.			
11.			
	139 = Total Cover		

50% of total cover: 69.5 20% of total cover: 27.8

Woody Vine Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)
Green Ash Cut down on edges of wetland
↳ Problematic veg.

SOIL

Sampling Point: 17L-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 3/2	90	10.5YR 4/4	10	C	PL/M	silt loam	
7-20	10YR 4/3	70	7.5YR 4/4	30	C	PL/M	silt loam	
20-30	5YR 4/6	60	7.5YR 4/6	5	C	PL/M	silt loam	
	2.5Y 4/2	35						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ✓ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Parkland Distance to nearest roadway or other development 116'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17L

Latitude 39.00904 Longitude -77.06730

Prepared by: KJH Date 8/15/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X				Floodplain depression
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation	X				Parkland - trails
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1495/1270 Managed Lanes Study City/County: Montgomery Sampling Date: 8/17/18
Applicant/Owner: SHA State: MD Sampling Point: 17H-WET
Investigator(s): KJH/SLY Section, Township, Range:
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): CONCAVE Slope (%): 0-2%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.009399 Long: -77.067256 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Photos: 4016 - 4017
Floodplain terrace that connects to 17L.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17M-WET

Tree Stratum (Plot size: 10 FT)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	90	Y	FAC
2.			
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot size: 10 FT)			
1. Acer negundo	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Shrub Stratum (Plot size: 10FT)			
1. Platanus occidentalis	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 10 FT)			
1. Lysimachia nummularia	20	Y	FACW
2. Euonymus fortunei	2	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	22 = Total Cover		
50% of total cover: 11	20% of total cover: 4.4		
Woody Vine Stratum (Plot size: 10 FT)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100. (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 17M-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	5Y 4/1	80	7.5YR 4/4	20	C	PL/M	Silt loam	
4-8	10YR 4/3	60	7.5YR 5/6	40	C	M	Silt loam	
8-24	10YR 4/3	95	7.5YR 4/4	5	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Parkland Distance to nearest roadway or other development 150'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17M

Latitude 39.0093 Longitude -77.067256

Prepared by: KJH Date 8/17/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X				- Floodplain depression
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation	X				Parkland - trails
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 17N	Stream Order:
Date: 8/17/16	State: MD	Photos: 4018-4019	
Crew: KDH, EYG	County: Mo	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Channel was dry during site visit Prairs wetland outside study Area			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside Study Area	Downstream: 19K (Rock Creek)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☒ Silts	☐ Sands	☐ Muck		RB: Forest
☐ Artificial (man-made)	Depth: 3-5"	☐ Cobbles	☐ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1				
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	○	○	◉	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1495/1270 MANAGED LANE City/County: MONTGOMERY Sampling Date: 08/17/18
Applicant/Owner: SHA State: MD Sampling Point: 170-WET
Investigator(s): KJH, EJG Section, Township, Range:
Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): CONCAVE Slope (%): 0
Subregion (LRR or MLRA): MLRA 148 Lat: 39.007718 Long: -77.069196 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES. NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____ No ✓	Depth (inches): ____
Water Table Present?	Yes ____ No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SURFACE WATER WITH WETLAND OUTSIDE PLOT POINT

PHOTO #'S - 4020 – 4022

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 170-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10FT)			
1. Acer negundo	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling Stratum (Plot size: 5FT)			
1.			
2. NONE			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 5FT)			
1.			
2.			
3. NONE			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5FT)			
1. Microstegium vimineum	90	Y	FAC
2. Boehmeria cylindrica	20	N	FACW
3. Lysimachia nummularia	5	N	FACW
4. Fraxinus pennsylvanica	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 5FT)			
1.			
2.			
3. NONE			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 170-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 4/2	70	5YR 4/4	30	C	PL,M	SILT LOAM	
8-24	2.5Y 4/2	60	5YR 4/6	40	C	PL,M	SILT LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest / Parkland Distance to nearest roadway or other development 135

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 170

Latitude 39.0271 Longitude -77.06919

Prepared by: KSH Date 8/17/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration	X				
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation	X				Parkland
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: 1495/1270 MANAGED WAVES		Feature ID: 170	Stream Order:
Date: 08/17/18	State: MD	Photos: 605 & 606 on 8/28/18	
Crew: KJH, EVG	County: MONTGOMERY	Last Flag Number: N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: DRY DURING FIELD VISIT. Drains manmade excavated area

Hydrologic Connectivity –	Upstream: Culvert outfall	Downstream: 19K (Rock Creek)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-2'	☒ Silts	☐ Sands	☐ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 2-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: FOREST
☐ Other:	STABLE	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☒ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: JULY Year: 2018
◉ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ○ 0 ○ 1	Normal
		○ 2 ○ 3	Moderately Wet
		◉ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 17R	Stream Order:
Date: 08/17/18	State: MD	Photos: 4026 - 4030	
Crew: KJH, EYG	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			◉ Non-RPW with adjacent wetland
Describe rational for hydrologic class: No Flow during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Culvert outfall	Downstream: 19K (Rock Creek)	Adjacent/Abutting: 175

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☒ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-4"	☐ Cobbles	☐ Gravel	☒ Other: riprap	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Incised channel - 1-5' Deep					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉	No rain	◉	0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~	**Date:** ~~7/29/2004~~ 8/17/18
Project No: I-495/I-270 Managed Lanes Study	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: ~~WMM/DAL/RAD~~ KDH, EYG	**Plot ID:** ~~W57M Plot 1~~ 17S-WET ~~10/7/15 ET~~

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:** ~~PFO~~ ~~PEM~~ PFO
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION **(USFWS Region No.1)**

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Lonicera japonica / Japanese honeysuckle	WV/SS	FAC-	*Carpinus virginiana* / American hornbeam	OS	FAC
~~*Fraxinus pennsylvanicum*~~ / ~~Green Ash~~ - Dead	OS	FACW	*Boehmeria cylindrica* / Bog Hemp	H	FACW+
Onoclea sensiblis / Sensitive fern	H	FACW	*Toxicodendron radicans* / Poison ivy	WV	FAC
Rosa multiflora / Multiflora rose	SS	FACU	*Polygnum Hydropiperoides* / Mild Water Pepper - Dominant	H	OBL
Lindera benzoin / Spicebush	SS	FACW-			
Lysimachia nummularia / Moneywort	H	OBL			
Microstegium vimineum / Stiltgrass	H	NI			
Acer negundo - At edge of / Box-elder wetland	OS	FAC+			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 75%	**FAC Neutral:** Yes **Numeric Index:**

Remarks: Several unidentified species
~~Changed to PEM~~ - Ash trees within wetland are dead
Photos 4031 - 4037
Changed to PFO based on guidance from MDE on 11/7/18.

HYDROLOGY

__ Recorded Data (Describe in Remarks):
- ___ Stream, Lake or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data

Field Observations

Depth of Surface Water:	0" inches
Depth to Free Water in Pit:	0" inches
Depth to Saturated Soil:	0" inches

Wetland Hydrology Indicators ↳ Considered problematic veg.

Primary Indicators
- X Inundated
- X Saturated in Upper 12 Inches
- X Water marks
- X Drift Lines
- ___ Sediment Deposits
- ___ Drainage patterns in Wetlands

Secondary Indicators (2 or more required)
- X Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:
Soils saturated @ surface; standing water present in some areas

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ I-495/I-270 Managed Lanes Study **Project No:** **Applicant/Owner:** SHA **Investigators:** ~~WMM/DAL/RAD~~ KJH, EYG	**Date:** ~~7/27/2004~~ 8/17/18 **County:** Montgomery **State:** MD **Plot ID:** ~~W57M Plot 1~~ 17-S-WET

SOILS

Map Unit Name (Series and Phase): Codorus silt loam, 0 to 3 percent slopes, occasionally flooded
Map Symbol: 53A **Drainage Class:** Moderately well, somewhat poorly **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Fluvaquentic Dystrochrepts **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12		2.5Y4/2	7.5YR4/4	Many/distinct	Silt loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:
Large wet floodplain adjacent to Rock Creek

Wetland Function-Value Evaluation Form

Total area of wetland 0.49 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 36'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 175

Latitude 39.01078 Longitude -77.065212

Prepared by: KJH Date 8/17/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration	X				Floodplain wetland
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Capital Beltway **Project No:** **Applicant/Owner:** **Investigators:** WMM/DAL/RAD	**Date:** 7/29/2004 **County:** Montgomery **State:** MD **Plot ID:** UPL57M Plot 1 (175-UPL)

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area?	Yes	No	**Field Location:**
(If needed, explain on the reverse side)			

VEGETATION **(USFWS Region No.1)**

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Lonicera japonica Japanese honeysuckle	WV/SS	FAC-			
Fraxinus pennsylvanicum Green Ash	OS	FACW			
Toxicodendron radicans Poison ivy	WV	FAC			
Acer negundo Box-elder	OS	FAC+			
Pyrus calleryana Bradford pear	SS	NI			
Parthenocissus quinquefolia Virginia creeper	WV	FACU			
Euonymus fortunei Climbing wintercreeper	WV	NI			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 42%	**FAC Neutral:** No **Numeric Index:**

Remarks: Upland data point; located on elevated area between W57 & Capital Beltway

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake or Tide Gauge ___ Aerial Photographs ___ Other _X_ No Recorded Data **Field Observations** Depth of Surface Water: ___ inches Depth to Free Water in Pit: ___ inches Depth to Saturated Soil: ___ inches	**Wetland Hydrology Indicators** Primary Indicators ___ Inundated ___ Saturated in Upper 12 Inches ___ Water marks ___ Drift Lines ___ Sediment Deposits ___ Drainage patterns in Wetlands Secondary Indicators (2 or more required) ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Capital Beltway **Project No:** **Applicant/Owner:** **Investigators:** WMM/DAL/RAD	**Date:** 7/27/2004 **County:** Montgomery **State:** MD **Plot ID:** UPL57M Plot 1 (175-UPL)

SOILS

Map Unit Name (Series and Phase): Codorus silt loam, 0 to 3 percent slopes, occasionally flooded
Map Symbol: 53A **Drainage Class:** Moderately well, somewhat poorly **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Fluvaquentic Dystrochrepts **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12		2.5Y4/3			Sandy loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495 / I-270 managed Lanes City/County: Montgomery County Sampling Date: 8/23/19
Applicant/Owner: SHA State: MD Sampling Point: 17 T-WET
Investigator(s): KH, SJF Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR or MLRA): MLRA 148 Lat: 39.011177 Long: -77.063390 Datum: NAD83
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
photos 0586-0589
veg break = 0589
Terrace next to Rock Creek Floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Note: Non-dominants were used for the FAC-Neutral test due to only one dominant species that was facultative, - Corps manual recommendation

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17-T-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 10')			
1. Microstegium vimineum	80	Y	FAC
2. Ampelopsis glandulosa	10	N	UPL
3. Bidens frondosa	20	N	FACW
4. Arthraxon hispidus	30	Y	FAC
5. Persicaria hydropiper	5	N	OBL
6. Cyperus strigosus	10	N	FACW
7. Fraxinus pennsylvanica	5	N	FACW
8. Solanum carolinense	2	N	FACU
9.			
10.			
11.			
	162 = Total Cover		
50% of total cover: 81	20% of total cover: 32.4		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes √ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 17-T-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y3/2	80	5YR3/4	20	C	M	Silt loam	
7-18	10YR3/3	80	5YR4/4	20	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 50'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17T

Latitude 39.21117 Longitude -77.06339

Prepared by: KSH Date 8/23/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X				
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: MONTGOMERY Sampling Date: 8/24/18
Applicant/Owner: SHA State: MD Sampling Point: 17U-VPL
Investigator(s): KJH, CCO Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): CONCAVE Slope (%): 0-2%
Subregion (LRR or MLRA): MLRA-148 Lat: 39.007023 Long: -77.069950 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES. NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
Area east of wetland 17U has wet veg & some secondary hydrology indicators, but no hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Alpha alpha strips taken during previous, wet conditions. Results were negative.
↳ (8/22/18)

Photo # 4073

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17V-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10' diameter)			
1. Platanus occidentalis	40	Y	FACW
2. Acer rubrum	10	N	FAC
3. Acer negundo	30	Y	FAC
4. Ulmus americana	10	N	FACU
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot size: 10' diameter)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 10' diameter)			
1. Fraxinus pennsylvanica	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 10' diameter)			
1. Persicaria punctata	20	N	OBL
2. Carex lupulina	70	Y	OBL
3. Fraxinus pennsylvanica	5	N	FACW
4. Euonymus fortunei	2	N	UPL
5. Lysimachia nummularia	5	N	FACW
6. Lindera benzoin	2	N	FAC
7.			
8.			
9.			
10.			
11.			
	104 = Total Cover		
50% of total cover: 52	20% of total cover: 20.8		
Woody Vine Stratum (Plot size: 10' diameter)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 17V-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 3/2	100	—	—	—	—	silt loam	
7-14	7.5YR 4/4	98	7.5 YR 5/6	2	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

- No hydric soil indicators
- Soils do not appear disturbed
- Alpha-alpha strips tested negative during wet conditions on 8/22/18.
- Area does not appear to pond due to veg growing through-out.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ **Project No:** I-495/I-270 Managed Lanes Study **Applicant/Owner:** SHA **Investigators:** ~~WMM/MRS/RAD~~ KJH, RL	**Date:** ~~8/3/2004~~ 8/22/18 **County:** Montgomery **State:** MD **Plot ID:** ~~W61M-PP1~~ 17U-WET ~~10/3/15 ET~~ KJH/RL

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:** PFO
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION **(USFWS Region No.1)**

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Symplocarpus foetidus Skunk cabbage	Herb	OBL	*Boehmeria cylindrica* False nettle	Herb	FACW+
Lindera benzoin Spicebush	Shrub	FACW-	Halberd leaf tear thumb - Dominant ~~Fraxinus pennsylvanica~~ Persicaria arifolia		
Acer rubrum Red maple	Tree	FAC	Rice cut grass - Dominant Leersia oryzoides		
Pilea pumila Canada clearweed	Herb	FACW			
Peltandra virginica — Dominant Arrow arum	Herb	OBL			
Osmunda regalis Royal fern	Herb	OBL			
Salix x subsericea Willow	Tree	FACW			
Platanus occidentalis Sycamore	Tree	FACW-			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 100%	**FAC Neutral:** Yes **Numeric Index:**

Remarks: Photos 2474 & 2475

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Data **Field Observations** Depth of Surface Water: ___---___ inches Depth to Free Water in Pit: ___---___ inches Depth to Saturated Soil: ___---___ inches	**Wetland Hydrology Indicators** Primary Indicators ___ Inundated ___ Saturated in Upper 12 Inches _X_ Water marks _X_ Drift Lines _X_ Sediment Deposits ___ Drainage patterns in Wetlands Secondary Indicators (2 or more required) ___ Oxidized Root Channels in Upper 12 Inches _X_ Water-Stained Leaves ___ Local Soil Survey Data _X_ FAC-Neutral Test ___ Other (Explain in Remarks)

Remarks:
After 30 minutes, 6 inches of water in pit. 1-2" surface water

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~> I-495/I-270 Managed Lanes Study	**Date:** ~~8/3/2004~> 8/22/18
Project No:	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: ~~WMM/MRS/RAD~> KSH, RL	**Plot ID:** ~~W61M-PP1~> I7U-WET

SOILS

Map Unit Name (Series and Phase): Glenelg silt loam, 8 to 15 percent slopes
Map Symbol: 2C **Drainage Class:** Well **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Typic Hapludults **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	B	5Y 3/1	10YR 4/4	Common	Silt loam
3-6	B2	5Y 5/1	7.5YR 5/6	Common	Silty clay loam
6-9	B2	5Y 5/1	---	Common	Silty clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:
Highway runoff

Wetland Function-Value Evaluation Form

Total area of wetland 0.76 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 57'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17U

Latitude 39.0270 Longitude -77.070869

Prepared by: KSH Date 8/22/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		7,8,9,13	X	wetland intercepts groundwater
Floodflow Alteration	X		4,5,6,10,11,18	X	Recieves floodflows from Rock creek
Fish and Shellfish Habitat		X			Not directly connected to Rock Creek, shallow surface water.
Sediment/Toxicant Retention	X		1,2,3,4,5,9	X	Retains Rock creek flood flows - highly urban
Nutrient Removal	X		3,4,5,7,8,9,10	X	Retains nutrients from Rock creek flood flows.
Production Export	X		1,2,7,8,9,		Mix of herbs, shrubs & trees
Sediment/Shoreline Stabilization		X	3,4,6,14,15		Not directly connected to a channel
Wildlife Habitat	X		1,5,7,8,9,13,15,19	X	Mix of herbs, shrubs & trees.
Recreation		X	1,5,		Parkland - Not easily accessable
Educational/Scientific Value		X	3,5,6,13		Parkland - Not easily accessable
Uniqueness/Heritage	X		1,4,10,17,22,27,31	X	Located in highly urbanized area
Visual Quality/Aesthetics	X		1,2,3,6,8,11,12	X	OBLIGATE Species - arrow arrum
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes study City/County: Montgomery Sampling Date: 5/14/19
Applicant/Owner: SHA State: MD Sampling Point: 17-UPL1
Investigator(s): KJH & ASN Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR or MLRA): MLRA 148 Lat: 39.007441143 Long: -77.069787851 Datum: WGS 84
Soil Map Unit Name: Codorus silt loam, 0 to 3 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
Floodplain depression with FAC veg. & surface water. No hydric soil indicators. Negative alpha alpha test.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
1.73 inches of rain w/in the last week

Photos: 322 - 323

Surface water is likely from Rock Creek flood flows.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17-UPL 1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 20' x 20')			
1. Acer negundo	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 20'x20')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 20' x 20')			
1. Acer negundo	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 10' x 10')			
1. Ficaria Verna	70	Y	FAC
2. Persicaria punctata	10	N	OBL
3. Ampelopsis brev. Pedunculata	3	N	UPL
4. Euonymus fortunei	2	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Woody Vine Stratum (Plot size: 20' x 20')			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 17-UPL 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					silty clay loam	
3-8	10YR 3/2	10					" "	
	10YR 4/3	90					" "	
8-28	10YR 4/3	100					" "	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Alpha-Alpha tested negative w/in upper 4 inches of soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes study City/County: Montgomery County Sampling Date: 8/23/19
Applicant/Owner: SHA State: MD Sampling Point: ITV-WET
Investigator(s): KH, SJF Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 4
Subregion (LRR or MLRA): MLRA 148 Lat: 39.010597 Long: -77.063939 Datum: NAD83
Soil Map Unit Name: GLENVILLE SILT LOAM, 3-8% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
photo1 0594-0596
Eastern portion of wetland is ponded w/ trees & dogwood

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- X True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 6
Water Table Present? Yes X No ____ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Sparsely vegetated concave surface within wetland - West of ponded area

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17V-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. Acer negundo	40	Y	FAC
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 10')			
1. Acer negundo	60	Y	FAC
2.			
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 10')			
1. Lemna minor	100	Y	OBL
2. Persicaria punctata	5	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)

large dead green ash inside plot area

SOIL

Sampling Point: TV-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y4/1	60	5YR3/4	40	C	M,PL	SiLl 10am	
5-18	10YR4/4	90	5YR3/4	10	C	M	10am	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.42 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 30'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17V

Latitude 39.20059 Longitude -77.66393

Prepared by: KJH Date 8/23/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration	X				Floodplain wetland
Fish and Shellfish Habitat	X				1-3' Deep open water
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage	X				Deep water PFO
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 17W	Stream Order:
Date: 8/23/18	State: MD	Photos: 0597-0599	
Crew: KJH SJF	County: MO	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Dry during site visit

Hydrologic Connectivity –	Upstream: 17V	Downstream: 19K (Rock Creek)	Adjacent/Abutting: 17V

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1'	☐ Silts	☐ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-3"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes: Weak bed & bank. Matted down veg - connection between Wetland 17V & Rock Creek

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/270 Managed Lanes City/County: Montgomery Sampling Date: 8/22/18
Applicant/Owner: SHA State: MD Sampling Point: 19X-WET
Investigator(s): RL & KSH Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.007060 Long: -77.071752 Datum: WGS84
Soil Map Unit Name: CODORUS SILT LOAM, 0-3% SLOPES NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
photos 2476-2477, small depressional wetland adjacent to 177, separated by an island berm. Seep wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): 0"
Water Table Present?	Yes ✓	No ____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 17X-WET

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		

50% of total cover: 15 20% of total cover: 6

Sapling Stratum (Plot size: 20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 20% of total cover:

Shrub Stratum (Plot size: 25')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 5'x5')			
1. Peltandra virginica	35	Y	OBL
2. Mimosteanum yuminenum	25	Y	FAC
3. Boehmeria cylindrica	2	N	FACW
4. Persecaria longiseta	2	N	FAC
5. Symplocarpus foetidus	2	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	66 = Total Cover		

50% of total cover: 33 20% of total cover: 13.2

Woody Vine Stratum (Plot size: 5'x5')			
1. Amelopsis brevipedunculata	5	Y	UPL
2.			
3.			
4.			
5.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 1X-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	90	5YR 3/3	10	C	M	Loam	
4-10	2.5Y 4/2	80	5YR 3/4	20	C	M	Silt Loam	
10-16	2.5Y 5/1	80	5YR 4/6	20	C	M,PL	Silt Loam	
16-22	10YR 4/1	80	5YR 4/6	20	C	M,PL	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: N/A

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.16 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 120'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 17X

Latitude 39.0070 Longitude -77.07175

Prepared by: KJH Date 8/22/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				Small seep wetland on hillslope
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 17Y	Stream Order:
Date: 8/22/18	State: MD	Photos: 2472 - 2473	
Crew: KJH, RL	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Standing Water is Shallow. Flows No flow coming out of culvert outfall

Hydrologic Connectivity –	Upstream: culvert outfall	Downstream: 19K (Rock Creek)	Adjacent/Abutting: 17U & 17X

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6-8'	☒ Silts	☒ Sands	☐ Muck		RB: Forest
☐ Artificial (man-made)	Depth: 2-6"	☒ Cobbles	☒ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			
☐ Other:	Severe erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1				LB: Forest
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 17Z	Stream Order:
Date: 8/23/18	State: MD	Photos: 0590-0593	
Crew: KJH, SJF	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			◉ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No Flow during site visit. Drains to wetland 17V.

Hydrologic Connectivity –	Upstream: culvert outfall	Downstream: 17V	Adjacent/Abutting: 17V

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-10'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-5"	☐ Cobbles	☒ Gravel	☒ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	rip-rap	
☐ Other:	minor erosion	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			LB: Forest

Notes: Drainage from 495.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018												
○ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 18A	**Stream Order:**
Date: 6/7/18	**State:** MD	**Photos:** 2914 - 2915	
Crew: KJH, RL	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing during site visit

Hydrologic Connectivity –	Upstream: 18B	Downstream: 19K (Rock Creek)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'-8'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1-6"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate erosion	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php														
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet				

Month: May Year: 2018

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 18-B	**Stream Order:**
Date: 6/7/18	**State:** MD	**Photos:** IPAD Photos 1 & 2	
Crew: KJH, RL	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No water during site visit

Hydrologic Connectivity –	Upstream: Outside study Area	Downstream: 18A	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☒ Silts	☒ Sands	☒ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-4"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May Year: 2018
◉ No rain	◉ 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	○ -1 ◉ 0 ○ 1	Normal
		○ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 18C	Stream Order:
Date: 8/7/18	State: MD	Photos: 18C-1 & 18C-2	
Crew: MRS, CAS	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing during site visit. Flows through culvert under I-495

Hydrologic Connectivity – Upstream: outside study Area Downstream: 19K (Rock Creek) Adjacent/Abutting: 18H & 18L

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 10-30'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 12-24"	☑ Cobbles	☑ Gravel	☑ Other: rip-rap	
☑ Manipulated (man-altered)	Bank Erosion/stability: Severe erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	◉	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/270 MLS		**Feature ID:** ~~19K~~ 18D	**Stream Order:** 1
Date: 7/26/18	**State:** MD	**Photos:** 3203 - 3209	
Crew: MRS, CCO	**County:** Montgomery	**Last Flag Number:** Not flagged, centerline GPS points	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing during time of year, culverted under Beach Drive into Rock Creek 4' concrete culvert			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: —	Downstream: Rock Creek (19K)	Adjacent/Abutting: —

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5-8'	☒ Silts	☒ Sands	☐ Muck	RB: hedgerow/mowed grass
☐ Artificial (man-made)	Depth: 0.2'	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: moderately stable	☐ Bedrock	☒ Concrete ⇒ rubble		LB: forest
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: July Year: 2018
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	⊗	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Verified 8/7/18 MS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

495/270 Managed Lanes Study

Project/Site: ~~I-270~~ - Montgomery County City/County: Montgomery Sampling Date: ~~10/4/15~~ 18 FEB

Applicant/Owner: SHA State: MD Sampling Point: ~~07-D-WET~~

Investigator(s): ~~ET/KSH~~ MRS + CAS Section, Township, Range:

Landform (hillslope, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope (%): 1%

Subregion (LRR or MLRA): MLRA 148 Lat: 39.00575 Long: -77.08043 Datum: WGS 84

Soil Map Unit Name: Glenelg silt loam NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Photos ~~10:27 10:34~~ iPad photos on ret ipad => emailed to MRS

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ✓ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

these results from 2018

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No X	Depth (inches): 0-6"
Water Table Present?	Yes ✓	No X	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No X	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Depressional active floodplain area bordered by roadway embankment and depositional berm along Rock Creek.

18F-Wet

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~03-D-WET~~

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	40	Y	FAC
2. Fraxinus pennsylvanica	10	Y	FACW
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25 20% of total cover: 10

Sapling Stratum (Plot size: 20')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 20')			
1. Lonicera morrowii	10	Y	FACU
2. Lindera benzoin	5	Y	FAC
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Herb Stratum (Plot size: 10')			
1. Boehmeria cylindrica	60	Y	FACW
2. Persicaria hydropiperoides	10	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 20')			
1. Celastrus orbiculatus	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

19F - Wet

SOIL

Sampling Point: ~~07-D-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	90	7.5YR 5/8	10	C	M	Sandy loam	
10-16	10YR 4/4	95	7.5YR 4/6	5	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland ≈0.8Ac Human made? N Is wetland part of a wildlife corridor? yes or a "habitat island"? No

Adjacent land use forested floodplain Distance to nearest roadway or other development ≈ 90'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 18F

Latitude _____ Longitude _____

Prepared by: MRS Date 8/7/18

Wetland Impact:
Type PFO Area ≈ 0.8Ac

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		4,5,7,8,9,11		
Floodflow Alteration	✓		4,5,6,7,8,9,10,11,13,15		
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1,2,3,4,5,9,10,12		
Nutrient Removal		✓	3,4,7,10,11,		
Production Export		✓	1,2,3,5,12,		
Sediment/Shoreline Stabilization		✓	1,2,4		
Wildlife Habitat		✓	5,7,8,11,		
Recreation		✓	1,		
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat					
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Wetland Function-Value Evaluation Form

Total area of wetland ≈0.8Ac Human made? N Is wetland part of a wildlife corridor? yes or a "habitat island"? No

Adjacent land use forested floodplain Distance to nearest roadway or other development ≈ 90'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 18F

Latitude 39.00575 Longitude -77.08043

Prepared by: MRS Date 8/7/18

Wetland Impact:
Type PFO Area ≈ 0.8 Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		4,5,7,8,9,15	✓	large, deep ponded area on Rock Creek floodplain. up to 1' deep surface water
Floodflow Alteration	✓		4,5,6,7,8,9,10,11,13,15	✓	wetland can store high floodwaters.
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1,2,3,4,5,9,10,12	✓	possibly for sediment trapping
Nutrient Removal		✓	3,4,7,10,16		
Production Export		✓	1,2,3,5,12,		
Sediment/Shoreline Stabilization		✓	1,2,4		
Wildlife Habitat		✓	5,7,8,11,		
Recreation		✓	1,		
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 18G	Stream Order:
Date: 8/22/18	State: MD	Photos: 2480-2481 & 3604 on 8/24/18	
Crew: KSH, RL	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Standing water & shallow flows during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Culvert outfall	Downstream: 19K (Rock Creek)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-12'	☑ Silts	☑ Sands	☐ Muck	RB: Meadow & Forest
☑ Artificial (man-made)	Depth: 3-12"	☑ Cobbles	☑ Gravel	☑ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability: moderate/severe erosion	☐ Bedrock	☑ Concrete	Rip-rap	LB: Meadow & Forest
☐ Other:		Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Middle section piped under I-495/Connecticut Ave Interchange					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lane Study City/County: Montgomery Sampling Date: 8/9/18
Applicant/Owner: SHA State: MD Sampling Point: 18H-wet
Investigator(s): MAS/RL Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA148 Lat: 39.007650 Long: -77.085542 Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☑ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (If needed, explain any answers in Remarks.)
Area wetter than normal

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Higher than normal rainfall for season. Located in floodplain of RK, west of 18C.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0-2"
Water Table Present?	Yes ☐	No ☑	Depth (inches): >25"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): at surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Perched surface hydrology from rain and recent overbank flow

photo 2554-2556

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: SH

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Box elder Acer negundo	50	Y	FAC
2. Sycamore Platanus occidentalis	10	N	FACW
3.			
4.			
5.			
6.			
	60	= Total Cover	

50% of total cover: ~~0.0~~ 30 20% of total cover: ~~0.0~~ 12

Sapling Stratum (Plot size: 20' radius)			
1.			
2. None			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 20' radius)			
1.			
2. None			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 20' radius)			
1. Boehmeria cylindrica	15	Y	FACW
2. Fraxinus pennsylvanica	15	Y	FACW
3. Lindera benzoin	15	Y	FACW
4. Microstegium vimineum	10	N	FAC
5. Verbesina alternifolia	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	

FAC in platform

50% of total cover: ~~0.0~~ 30 20% of total cover: ~~0.0~~ 12

Woody Vine Stratum (Plot size: 20' radius)			
1. Toxicodendron radicans	5	Y	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	

50% of total cover: ~~0.0~~ 2.5 20% of total cover: ~~0.0~~ 1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 18H

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	95%	7.5YR 4/6	5%	C	M	clay loam	
6-15	7.5YR 4/3	70%	7.5YR 4/6	30%				
15-20	7.5YR 4/3	70%						
	10YR 5/2	30%						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.1 Ac Human made? No Is wetland part of a wildlife corridor? yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development ~100 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 18H

Latitude 39.007660 Longitude -77.085942

Prepared by: MS Date 8/9/10

Wetland Impact:
Type PFO Area 0.1 Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			✓	
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 18i	**Stream Order:**
Date: 8/7/18	**State:** MD	**Photos:** on ipad plus 2087-2089 on 8/8/18	
Crew: MRE/CAS	**County:** Montgomery	**Last Flag Number:** 18i-3b	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of investigation. Previously delineated as perennial.			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: None Downstream: 19K → Rock creek outside study area Adjacent/Abutting: 18j

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
Natural Channel Shape	Width: 8'-10'	Silts	Sands	Muck	RB: forest
Artificial (man-made)	Depth: 0-1.0'	Cobbles	✓ Gravel	Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: moderate	Bedrock	Concrete		LB: forest
Other:		Side slope: ✓ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: channel appears to be straightened					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018												
No rain	0-0.5									●				
Light rain	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
● Heavy Rain	>1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	Vegetation matted down, bent, or absent	Destruction of terrestrial veg.	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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		Feature ID: 18J	Stream Order:
Date: 8/7/18	State: MD	Photos: Pad (18j-1 & 18j-2); 2090-2092 on 8/9/18	
Crew: MRS+CAS	County: Montgomery	Last Flag Number: 18j-7	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			✓ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Dry @ time of delineation. Evidence of flow + somewhat defined bed/bank

Hydrologic Connectivity –	Upstream: 18K (wetland)	Downstream: 18I (perennial)	Adjacent/Abutting: 18K

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 2-4 ft	✓ Silts	✓ Sands	✓ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 0 in (no flow)	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	somewhat eroded	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php								Month: July	Year: 2018			
✓	No rain	○	0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	✓	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☐	Observed/predicted flow events
	☒	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☐	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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes Study City/County: Montgomery Co. Sampling Date: 8/7/18
Applicant/Owner: SHA State: MD Sampling Point: 18K-Wet
Investigator(s): MRS & CAS Section, Township, Range:
Landform (hillslope, terrace, etc.): Floodplain/Toe of slope Local relief (concave, convex, none): Concave Slope (%): 0-2%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.008487 Long: -77.086810 Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0 to 3%, occassionally ponded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]
Wetland Hydrology Present?	Yes [✓]	No [ ]
Is the Sampled Area within a Wetland?	**Yes** [✓]	**No** [ ]

Remarks:
Photos 2093-2097. Waters 18J downstream of wetland.

Potential vernal pool habitat.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [✓] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [✓] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 14"
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 10"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Feature is a muddy, sparsely vegetated depression on the Rock Creek floodplain (19K)

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ISK-Wet

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 20' radius)			
1. Box elder - Acer negundo	60	Y	FAC
2. Sycamore - Platanus occidentalis	20	Y	FACW
3. Am. Elm - Ulmus americana	10	N	FAC
4.			
5.			
6.			
	~~0~~ 90 = Total Cover		
50% of total cover: ~~0.0~~ 45	20% of total cover: ~~0.0~~ 18		
Sapling Stratum (Plot size: 20' radius)			
1. Box elder - Acer negundo	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	~~0~~ 10 = Total Cover		
50% of total cover: ~~0.0~~ 5	20% of total cover: ~~0.0~~ 2		
Shrub Stratum (Plot size: 20' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 20' radius)			
1. Bachmannia cylindrica	20	Y	FACW
2. Microstegium vimineum	10	Y	FAC
3. Leersia virginica	10	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	~~0~~ 40 = Total Cover		
50% of total cover: ~~0.0~~ 20	20% of total cover: ~~0.0~~ 8		
Woody Vine Stratum (Plot size: _____)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: _____ (A)	0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

Canopy used to include green ash, but now appear dead from ash borer.

SOIL Sampling Point: 18 K-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100						
2-5	7.5YR 4/2	70	7.5YR 4/6	30	C	M/P	clay loam	
5-14	7.5YR 4/2	95	7.5YR 4/6	5	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.11 AC Human made? NO Is wetland part of a wildlife corridor? yes or a "habitat island"? NO

Adjacent land use forested Distance to nearest roadway or other development ~200 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 15K

Latitude 39.008487 Longitude -77.086816

Prepared by: MMS Date 8/7/15

Wetland Impact:
Type PFO Area ~ 0.1 AC

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			✓	
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				vernal pool habitat??
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 managed Lane City/County: Montgomery Co. Sampling Date: 11/7/15
Applicant/Owner: SHA State: MD Sampling Point: 15C wet
Investigator(s): MRS/CAS Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.007043 Long: -77.083736 Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0-3% slopes, occasionally ponded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]
Hydric Soil Present?	Yes [X]	No [ ]
Wetland Hydrology Present?	Yes [X]	No [ ]
Is the Sampled Area within a Wetland?	**Yes** [X]	**No** [ ]

Remarks:
feature is a series of vernal pool wetlands along eroded swale on Rock Creek floodplain - based on MDE field review

Photos on Orange iPad

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [x] Sparsely Vegetated Concave Surface (B8)
- [x] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [x] No [ ] Depth (inches): 0-6"
Water Table Present? Yes [x] No [ ] Depth (inches): 0"
Saturation Present? (includes capillary fringe) Yes [x] No [ ] Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: ponded water in erosional swale across floodplain

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 18L-wet

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15' radius)			
1. Box elder (Acer negundo)	60	Y	FAC
2.			
3.			
4. Fraxinus pennsylvanica			
5. Dead Green Ash tm			
6. canopy - ash borer			
	Ø 60 = Total Cover		
50% of total cover: ~~0.0~~ 30	20% of total cover: ~~0.0~~ 12		
Sapling Stratum (Plot size: 15' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Shrub Stratum (Plot size: 15' radius)			
1. Spice bush (Lindera benzoin)	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: ~~0.0~~ 10	20% of total cover: ~~0.0~~ 4		
Herb Stratum (Plot size: 15' radius)			
1. Spice bush (Lindera benzoin)	10	Y	FAC
2. Porcelain berry (Ampelopsis brevipedunculata)	10	Y	UPL
3. stilt grass (Microstegium vimineum)	5	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	Ø 25 = Total Cover		
50% of total cover: ~~0.0~~ 12.5	20% of total cover: ~~0.0~~ 5		
Woody Vine Stratum (Plot size:)			
1.			
2. None			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

vegetation restricted to edges of wetland due to standing water

SOIL

Sampling Point: 18L-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 6/2	95	10YR 6/4	5	C	M	silty sand	
2-6	10YR 5/2	80	10YR 6/4	20	C	M	fine sand	faint redox
6-9	7.5YR 6/1	95	10YR 7/4	5	C	M	fine sand	more redox
9-12	10YR 5/2	70	10YR 6/4	30	C	M	silty sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☑ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ○

Remarks: Soils are fine sand with silt → depositional on Rock Creek floodplain, some redox from minerals in silt component? ?

Wetland Function-Value Evaluation Form

Total area of wetland 0.02Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"?

Adjacent land use Forest Distance to nearest roadway or other development 160 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 18L

Latitude 39.007043 Longitude -77.083736

Prepared by: MRS Date 11/7/18

Wetland Impact:
Type PFO Area 0.02 Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			feature is too small to provide significant function
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				possible vernal pool habitat
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

495/270 Managed Lane Study

verified MRS 8/7/18

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ 495/270 Managed Lane Study	**Date:** ~~8/3/2004~~ 8/7/18
Project No:	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: ~~WMM/MRS/RAD~~ MRS/CAS	**Plot ID:** ~~W63M-PP1~~ ~~T&E-1~~ 18M-wet PFO

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION **(USFWS Region No.1)**

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Acer negundo Box elder	Tree	FAC+	*Pilea pumila* Canada clearweed	Herb	FACW
Lonicera morrowii Morrow's honeysuckle	Shrub	NI	*Vitis L.* Grape vine	Vine	NA
Populus deltoides Cottonwood	Tree	FAC	*Monarda didyma* Bee balm	Herb	FAC+
Fraxinus pennsylvanica Green ash	Tree	FACW	*Asparagus officinalis* Asparagus	Herb	FACU
Polygonum punctatum Dotted smartweed	Herb	OBL	Bidens cernua Nodding beggartick	Herb	OBL
Rosa multiflora Multiflora rose	Shrub	FACU	*Acer saccharinum* Silver maple	Tree	FACW
Toxicodendron radicans Poison ivy	Vine	FAC			
Juncus effusus Soft rush	Herb	FACW+			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 85%	**FAC Neutral:** Yes **Numeric Index:**

Remarks: Note: In 2018 most of Green ash has been killed by emerald ash borer. Forest canopy dominated by box elder

HYDROLOGY

___ **Recorded Data (Describe in Remarks):** ___ **Stream, Lake or Tide Gauge** ___ **Aerial Photographs** ___ **Other** ___ **No Recorded Data**	**Wetland Hydrology Indicators** **Primary Indicators** ___ **Inundated** ___ **Saturated in Upper 12 Inches** _X_ **Water marks** _X_ **Drift Lines** _X_ **Sediment Deposits** ___ **Drainage patterns in Wetlands** **Secondary Indicators (2 or more required)** ___ **Oxidized Root Channels in Upper 12 Inches** _X_ **Water-Stained Leaves** ___ **Local Soil Survey Data** _X_ **FAC-Neutral Test** ___ **Other (Explain in Remarks)**
Field Observations **Depth of Surface Water:** _2_ inches **Depth to Free Water in Pit:** _---_ inches **Depth to Saturated Soil:** _---_ inches	

Remarks: Photos 2096, 2074-2075

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ **Project No:** **Applicant/Owner:** **Investigators:** ~~WMM/MRS/RAD~~ MRS	**Date:** ~~8/3/2004~~ 8/7/18 **County:** Montgomery **State:** MD **Plot ID:** ~~W63M-PP1~~ 18M

SOILS

Map Unit Name (Series and Phase): Codorus silt loam, 0 to 3 percent slopes, occasionally flooded
Map Symbol: 53A **Drainage Class:** Moderately well, somewhat poorly **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Fluvaquentic Dystrochrepts **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	B1	2.5Y 4/1			Silt loam
3-12	B2	2.5Y 5/2	10YR 5/6	Common	Silt loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
___ Gleyed or Low Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland ≈ 0.3AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development ~50 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 18M

Latitude _____ Longitude _____

Prepared by: MMS Date 8/17/18

Wetland Impact:
Type PFO Area 0.3Ac

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 18X	**Stream Order:**
Date: 10/26/18 and 8/7/18	**State:** MD	**Photos:** 033.0 on 10/26/18 - 9 photos taken	
Crew: MRS, MBS / KJH	**County:** Montgomery	**Last Flag Number:** flagged as 19K8+9	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	✓ RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: deeply incised side channel originating at pipe outfall water elevation = base flow elevation of Rock Creek			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: pipe	Downstream: 19K - Rock Creek	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
	Natural Channel Shape	Width: 3-4'	X	Silts	X	Sands	X	Muck	RB: forest
✓	Artificial (man-made)	Depth: 0.1 - 1.0'		Cobbles		Gravel		Other:	
	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete			
	Other:	moderately stable	Side slope: X ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1						LB: forest

Notes: straight SW pipe outfall channel, incised down to meet baseflow elevation of Rock Creek

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: July Year: 2018 (site first visited on 8/7/18)												
X	No rain		0-0.5											X		
	Light rain		0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain	X	>1	Severe Drought			Moderate Drought		Normal			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					
✓	Yes	X	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/debris	✓	Observed/predicted flow events
			Vegetation matted down, bent, or absent	✓	Destruction of terrestrial veg.		Abrupt change in plant community
			Leaf litter disturbed	X	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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 19-A	**Stream Order:** 2
Date: 4-5-2018	**State:** MD	**Photos:** 2494 & 2495	
Crew: MES/AGR	**County:** Montgomery	**Last Flag Number:** 7A & B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Not flowing during field visit, however no veg. on bed and wet w/ storm debris accumulated at pipe			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Two concrete-lined ephemeral channels	Downstream: 36" concrete pipe	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width:	☐ Silts	☒ Sands	☐ Muck	RB: Hedgerow
☐ Artificial (man-made)	Depth:	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Hedgerow
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: within interchange of Rockville Pike					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: March Year: 2018												
● No rain	● 0-0.5	○	○	○	○	●	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☒ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495 - 270		**Feature ID:** 19 B	**Stream Order:**
Date: 9/18/18	**State:** MD	**Photos:** 48 53	
Crew: MAS - EVG	**County:** MONTGOMERY	**Last Flag Number:** 198-6 (extended)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: small channel, observed flow but no rain in past several days			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: 196	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2 - 3'	☒ Silts	☒ Sands	✓ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 5" – 8"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: FOREST
☐ Other:	MOD STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: SOME PANELS ERODED BY THE FENCED AREA TO HIGHWAY

UPSTREAM LINED W/ COCONUT FIBER – RESTORATION.

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: August	Year: 2018
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○	○
○	Light rain	●	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** Verified MBS 4/5/2018

Project: ~~I-495-IRVM - Montgomery County~~		**Feature ID:** ~~W78M~~ 19C	**Stream Order:** 3
Date: ~~12/12/2014~~ 4/5/2018	**State:** MD	**Photos:** ~~2123-2124~~ 2498-2499	
Crew: ~~MRS/MBS~~ MBS/AGA	**County:** Montgomery	**Last Flag Number:** 5a/5b - Continued by conveyance data	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Deep pools, well-developed stream geomorphology			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: outside of study area	Downstream: ~~W162M~~ 19F	Adjacent/Abutting: ~~W80M~~ 19D

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 15'		✓ Silts	✓ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1-2'		✓ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Moderately stable		Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Banks generally stable with areas of raw bank						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: Nov	Year: 2014
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Verified MBS 4/5/2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ~~I-495/I-270 MANAGED LANES STUDY~~ I-495/I-270 MANAGED LANES STUDY City/County: MONTGOMERY Sampling Date: ~~12/01/2014~~ 4/5/2018

Applicant/Owner: SHA State: MD Sampling Point: ~~W80M~~ 19D

Investigator(s): ~~MRS/MBS~~ MBS/ABA Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): MLRA 148 Lat: 39°01'08.65" N Long: 77°06'29.81" W Datum: WGS84

Soil Map Unit Name: WHEATON URBAN LAND COMPLEX, 0-8% SLOPES NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 3

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling Point: 19D ~~WSOM~~

VEGETATION (Five Strata) – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1. Liriodendron tulipifera	5	Y	FACU
2. Acer rubrum	5	Y	~~FAC~~
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot size: 30')			
1. NA			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30')			
1. Lindera benzoin	20	Y	~~FACW~~ FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 10')			
1. NA			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30')			
1. NA			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Mostly free of woody vegetation, except along edges No herbaceous vegetation apparent at the time of delineation 12/1/14

SOIL

Sampling Point: 19D WSOM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	5YR 2.5/1						organic	
8-12	5Y 2.5/1	90	10YR 3/6	10	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 176.75sf Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Roadway, forest, Residential Distance to nearest roadway or other development 65'

Dominant wetland systems present Pro1 Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 19D

Latitude Longitude

Prepared by: MBS Date 4/5/2018

Wetland Impact:
Type Area

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 19E	**Stream Order:** 2
Date: 4/6/2018	**State:** MD	**Photos:** 2502-7503	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 19E-0 to 19E-3 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NOT FLOWING DURING FIELD VISIT, HOWEVER WATER LINE IS APPARENT ON CONCRETE LINING, ~3FT WIDE INDICATING SIGNIFICANT FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: PIPE-3' DIAM.	Downstream: 19F	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3 ft	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 0	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☒ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: WITHIN I-495 MEDIAN, WEST OF ROCKVILLE PIKE					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: March Year: 2018												
● No rain	● 0-0.5	○	○	○	○	●	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

FEATURE CHARACTERIZED DOWNSTREAM OF ROADWAY

Project: 495 · 270 MEAN. LANES		**Feature ID:** 19F	**Stream Order:**
Date: 9/6/18 ←	**State:** MD	**Photos:** 2504 - 05 (04/06/18)	
Crew: MOS + MRS/EVG	**County:** MoCo	**Last Flag Number:** not flagged, previously surveyed	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	[X] RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: large, well-defined channel with standing flow			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: 19C, 19E, 19G Downstream: unknown (outside study area) Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
[X]	Natural Channel Shape	Width: 2-3'	[ ]	Silts	[X]	Sands	[ ]	Muck	RB: FOREST
[ ]	Artificial (man-made)	Depth: .5-2'	[X]	Cobbles	[X]	Gravel	[ ]	Other:	
[X]	Manipulated (man-altered)	Bank Erosion/stability:	[ ]	Bedrock	[ ]	Concrete			LB: FOREST
[ ]	Other:	MOD. ERODED	Side slope: [X] ≥1:1 [X] 2:1 [ ] 3:1 [ ] ≤4:1						
Notes: VERTICAL SLOPES, SEC. IN INTERCHANGE MANIPULATED DS									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: August Year: 2018												
[X]	No rain	[X]	0-0.5										[X]			
[ ]	Light rain	[ ]	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
[ ]	Heavy Rain	[ ]	>1	Severe Drought			Moderate Drought		Normal			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					
[X]	Yes	[ ]	Clear, natural line impressed on the bank	[X]	Sediment deposition	[X]	Sediment sorting
[ ]	No	[ ]	Changes in the character of soil	[ ]	Water staining	[X]	Scour
		[ ]	Shelving	[X]	Presence of flood litter/debris	[ ]	Observed/predicted flow events
		[ ]	Vegetation matted down, bent, or absent	[ ]	Destruction of terrestrial veg.	[ ]	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:
Notes:					

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 19F	**Stream Order:** 2
Date: 4/6/2018	**State:** MD	**Photos:** 2506, 2507	
Crew: MBS/STF	**County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: WATER IN CHANNEL, BUT NOT FLOWING DURING FIELD VISIT, WATER LINE INDICATES SIGNIFICANT PERIODIC FLOW

Hydrologic Connectivity –	Upstream: 3' DIAM PIPE (19B)	Downstream: 19F	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 3"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: MODERATE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: WITHIN MEDIAN OF I-495, WEST OF ROCKVILLE PIKE

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: March Year: 2018													
● No rain	● 0-0.5	○	○	○	○	●	○	○	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		Feature ID: 19J	Stream Order:
Date: 09/18/18 and 10/12/18	State: Maryland	Photos: 0035-0041 on 9/18/18 4325-4329 on 10/12/18	
Crew: MRS/EYG MRS/SJF	County: Montgomery	Last Flag Number: 19J-11	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: large, well-defined channel with abundant flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Outside study area	Downstream: Outside study area	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3'-18'	☒ Silts	☒ Sands	☒ Muck		RB: forest, shrubs
☑ Artificial (man-made)	Depth: 2'-12"	☐ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			
☐ Other:	Stable	Side slope: ☒ ≥1:1	☒ 2:1	☒ 3:1	☐ ≤4:1	LB: forest, dense bamboo
Notes: Feature culverted under Maryland Park Dr. & 495						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: August	Year: 2018
⊗ No rain	○ 0-0.5	○ -6	○ -5	○ -4	○ -3	○ -2	○ -1	○ 0	○ 1	○ 2	● 3	○ 4	○ 5	○ 6
○ Light rain	⊗ 0.5-1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		
○ Heavy Rain	○ >1													

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes Study		**Feature ID:** 19K	**Stream Order:**
Date: multiple days	**State:** MD	**Photos:** many photos on multiple dates	
Crew: MRJ/RL/EYG	**County:** Montgomery Co	**Last Flag Number:** not flagged (LIDAR data)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	X RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: Rock creek - DNR + NWI mapped			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: unknown Downstream: Potomac River Adjacent/Abutting: multiple wetlands and tributary

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
X	Natural Channel Shape	Width: 20'-40'	X	Silts	X	Sands	X	Muck	RB: forest
	Artificial (man-made)	Depth: 0.5' – 6.0'	X	Cobbles	X	Gravel	X	Other:	
X	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock		Concrete		concrete	
	Other:	moderate to severe	Side slope: X ≥1:1 X 2:1 ☐ 3:1 ☐ ≤4:1						LB: forest
Notes:									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		feature visited on multiple dates and flow levels			Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php					Month:		Year:		
X	No rain	X	0-0.5													
X	Light rain	X	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	Heavy Rain	X	>1	Severe Drought			Moderate Drought		Normal			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					
X	Yes		Clear, natural line impressed on the bank	X	Sediment deposition	X	Sediment sorting
	No		Changes in the character of soil	X	Water staining	X	Scour
		X	Shelving	X	Presence of flood litter/debris	X	Observed/predicted flow events
		X	Vegetation matted down, bent, or absent	X	Destruction of terrestrial veg.	X	Abrupt change in plant community
			Leaf litter disturbed	X	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:
Notes:					

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes Study City/County: Montgomery Co. Sampling Date: 8/7/18
Applicant/Owner: MNCPPC State: MD Sampling Point: 19M-Wet
Investigator(s): MRS + CAS Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 147+149 Lat: 39.013039° Long: -77.092496° Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (X)	No ( )	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes (X)	No ( )	
Wetland Hydrology Present?	Yes (X)	No ( )	

Remarks: Small pocket of wet forest in Rock Creek Park. Paved recreational trail seperates it from continuous floodplain forest.

Photos 1+2

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [X] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [X] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [X] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 1-4 in
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes (X) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Areas of surface water present. Other areas appear muddy w/sparse veg.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: PM-wet

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	30	Y	FAC
2. Acer saccharinum	30	Y	FACW
3. Platanus occidentalis	10	N	FACW
4.			
5.			
6.			
	60	= Total Cover	
50% of total cover: 30		20% of total cover: 12	

Sapling Stratum (Plot size: 20')			
1. Acer saccharinum	5	N	FACW
2. Acer negundo	20	Y	FAC
3. Mulberry Morus alba	5	N	FACU
4.			
5.			
6.			
	30	= Total Cover	
50% of total cover: 15		20% of total cover: 6	

Shrub Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover: 0.0		20% of total cover: 0.0	

Herb Stratum (Plot size: 20') 60			
1. Fraxinus pennsylvanica	10	N	FACW
2. Brachmeria cylindrica	20	Y	FACW
3. Persicaria hydropiper	5	N	OBL
4. Ampelopsis brevipedunculata	20	Y	NI
5. Microstegium vimineum	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	
50% of total cover: 30		20% of total cover: 12	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0.0		20% of total cover: 0.0	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 19M-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					silt	many rootlets, some gravels
3-14	10YR 3/1	80	5YR 3/6	20	C	M	↓	
14-18	10YR 3/6	90	2.5Y 5/2	10	D	M	↓	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☒ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): None

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ⊗ No ○

Remarks: feature is on Rock Creek floodplain

Wetland Function-Value Evaluation Form

Total area of wetland ~0.16Ac Human made? No Is wetland part of a wildlife corridor? yes or a "habitat island"? No

Adjacent land use forest, grassy park Distance to nearest roadway or other development 50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? yes If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 19M

Latitude _____ Longitude _____

Prepared by: MMS Date 8/7/18

Wetland Impact:
Type PFO Area ≈0.16 Ac

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other		✓			

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/270 MLS		**Feature ID:** 19N	**Stream Order:** 1
Date: 7/26/18	**State:** MD	**Photos:** 3216 – 3221	
Crew: MRS, CCO	**County:** Montgomery	**Last Flag Number:** Not flagged, GPS points	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing @ time of investigation, under road to rock creek			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: unknown (outside study area)	Downstream: Rock creek	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☒	Natural Channel Shape	Width: 15'	☒	Silts	☒	Sands	☐	Muck	RB: mowed area/SL mbs
☐	Artificial (man-made)	Depth: 6-12"	☒	Cobbles	☒	Gravel	☐	Other:	
☒	Manipulated (man-altered)	Bank Erosion/stability: moderately stable	☐	Bedrock	☐	Concrete			LB: forest
☐	Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1						
Notes: concrete banks near road									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: June	Year: 2018
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○		
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○	Heavy Rain	⊗	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☒	Observed/predicted flow events
	☐	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☐	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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: 495/270 managed Lanes City/County: Montgomery Sampling Date: 8/16/18

Applicant/Owner: SHA State: MD Sampling Point: 190-wet

Investigator(s): MMS/EYG Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none/concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 147/148 Lat: 39° 01' 13.41" N Long: 77° 08' 06.14" W Datum: NAD83

Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): 0
Water Table Present?	Yes ☐	No ☑	Depth (inches): >14"
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): >14"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area inundated by very heavy rains (several weeks before actual delineation → field observation

photos 3592-3599

this PFO was previously dominated by green ash in the 16-24" size class. those are all dead due to emerald ash borer.

180-wet

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: _____

Tree Stratum (Plot size: 20' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	70	Y	FAC
2. ~~Ø~~			
3. Ulmus americana	15	N	FACW
4.			
5.			
6.			
7.			
8.			
	42.5 85	= Total Cover	17

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3. None			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
		= Total Cover	

Herb Stratum (Plot size: 20' radius)			
1. Pursicaria punctatum	25	N	OBL
2. Boehmeria cylindrica	15	N	FACW
3. Microstegium vimineum	~~35~~ 40	Y	FAC
4. Cinna sinuacea	40	Y	FACW
5. Carex tribuloides comosa	5	N	OBL
6. Green ssh F. pensylvanica	5	N	FACW
7. porcelain berry Ampelopsis brevipedunculata	5	N	NI
8.			
9.			
10.			
11.			
12.			
	67 135	= Total Cover	27

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3. None			
4.			
5.			
6.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

low, uneven topography, lots of downed woody debris

SOIL

Sampling Point: 190-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 4/2	100	None				silt	
2-6"	10YR 4/2	65	10YR 4/6	35	C	M	silt	
6-10"	10YR 5/2	60	10YR 4/6	40	C	M	silt	
10-14"	10YR 5/2	40	10YR 4/6	60	C	M+P	silt	
			10YR 5/2					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☒ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ○

Remarks:

Wetland is on Rock Creek floodplain

Wetland Function-Value Evaluation Form

Total area of wetland ~0.7AC Human made? NO Is wetland part of a wildlife corridor? Yes or a "habitat island"? NO

Adjacent land use forest Distance to nearest roadway or other development 40'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 190

Latitude _____ Longitude _____

Prepared by: MRS Date 8/16/18

Wetland Impact:
Type PFO Area ~0.7AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		4, 7, 8, 9	✓	
Floodflow Alteration	✓		4, 5, 6, 7, 8, 9, 10, 13, 15		
Fish and Shellfish Habitat		✓	—		
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 7, 9, 10, 13, 15, 16		
Nutrient Removal	✓		3, 4, 5, 7, 8, 10, 11, 14		
Production Export	✓		1, 2, 4, 7, 12, 14		
Sediment/Shoreline Stabilization		✓	4, 14		
Wildlife Habitat	✓		5, 7, 8, 16, 19, 20, 21		
Recreation		✓	1, 5, 12		
Educational/Scientific Value		✓	5		
Uniqueness/Heritage		✓	22, 19,		
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/270 MLS City/County: Montgomery Sampling Date: 7/26/18
Applicant/Owner: SHA State: MD Sampling Point: 19Q-WFO-WET
Investigator(s): MRS, CCO Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace/floodplain Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 148 Lat: 39°01'08.80"N Long: 77°06'02.61"W Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0-3% slopes, occasionally flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (O) No ( )	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes (O) No ( )	
Wetland Hydrology Present?	Yes (O) No ( )	

Remarks: wetland is a low area along the Rock Creek floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [X] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [X] No [ ] Depth (inches): 0-2
Water Table Present? Yes [X] No [ ] Depth (inches): 4
Saturation Present? (includes capillary fringe) Yes [X] No [ ] Depth (inches): to surface

Wetland Hydrology Present? Yes (X) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
0-2" standing water
Site likely more saturated than normal due to recent, large rain events

photos 3229-3232

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 19Q - wet

Tree Stratum (Plot size: 30' radius)		Absolute % Cover	Dominant Species?	Indicator Status
1. red maple	Acer rubrum	50	Y	FAC
2. american elm	Ulmus americana	40	Y	FACW
3. sycamore	Platanus occidentalis	5	N	FACW
4. pin oak	Quercus palustris	5	N	FACW
5.				
6.				
		0 100	= Total Cover	

50% of total cover: ~~0.0~~ 50 20% of total cover: ~~0.0~~ 20

Sapling Stratum (Plot size: 30' radius)				
1. red maple	Acer rubrum	5	Y	FAC
2. american elm	Ulmus americana	5	Y	FACW
3.				
4.				
5.				
6.				
		~~0~~ 10	= Total Cover	

50% of total cover: ~~0.0~~ 5 20% of total cover: ~~0.0~~ 2

Shrub Stratum (Plot size: 30' radius)				
1. —				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 30' radius)				
1. false nettle	Boehmeria cylindrica	40	Y	FACW
2. Stilt grass	Microstegium vimineum	30	Y	FAC
3. wood nettle	Cinna arundinacea	40	Y	FACW
4.	Persicaria punctata	10	N	OBL
5. poison ivy	Toxicodendron radicans	5	N	FAC
6. porcelain berry	Ampelopsis brevipedunculata	5	N	NI
7.				
8.				
9.				
10.				
11.				
		65 ~~0~~ 130	= Total Cover	26

50% of total cover: ~~0.0~~ 20% of total cover: ~~0.0~~

Woody Vine Stratum (Plot size: 30' radius)				
1. N/A				
2.				
3.				
4.				
5.				
		0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 19Q-PFO-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	60	10YR 3/4	40	C	M	clayey loam	
4-10	10YR 4/2	80	7.5YR 3/4	20	C	PL	clayey loam	
10-14	10YR 5/3	70	5YR 4/4	30	C	PL	clayey silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☑ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland ~2 AC Human made? NO Is wetland part of a wildlife corridor?_____ or a "habitat island"?_____

Adjacent land use forested floodplain + roadway Distance to nearest roadway or other development 100 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present yes

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? Mid on floodplain

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 19Q

Latitude_____ Longitude_____

Prepared by: MRJ Date 7/26/18

Wetland Impact:
Type PFO Area ≈ 2 AC

Evaluation based on:
Office_____ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		7, 8, 9, 10, 13	✓	
Floodflow Alteration	✓		2, 3, 4, 5, 6, 7, 8, 9, 10 13, 15	✓	
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 5, 7, 8, 10, 12, 14, 15, 16	✓	
Nutrient Removal	✓		3, 4, 5, 7, 8, 9, 10, 11, 12, 13	✓	
Production Export	✓		1, 2, 4, 7, 10, 12, 14		
Sediment/Shoreline Stabilization		✓	1, 7		
Wildlife Habitat	✓		3, 6, 7, 8, 13, 16, 19, 20	✓	frogs, birds + deer
Recreation		✓	1, 5, 12		
Educational/Scientific Value		✓	5, 10		
Uniqueness/Heritage		✓	7, 8, 22		
Visual Quality/Aesthetics		✓	8		
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes	**Feature ID:** 19R	**Stream Order:**
Date: 8/1/18 **State:** MD	**Photos:** 1983-1994	
Crew: RL & MDS **County:** Montgomery	**Last Flag Number:** Blue Line Stream	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Channel has modest flow at upstream end, but has significant flow downstream that likely remains all year			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 19Q	Downstream: Rock Creek	Adjacent/Abutting: 19S

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☒	Natural Channel Shape	Width: 2-15'	☒	Silts	☒	Sands	☒	Muck	RB: Forest
☐	Artificial (man-made)	Depth: 1"-2'	☐	Cobbles	☐	Gravel	☐	Other:	
☐	Manipulated (man-altered)	Bank Erosion/stability:	☐	Bedrock	☐	Concrete			
☐	Other:	Stable to moderate erosion	Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☒ ≤4:1						LB: Forest
Notes: Channel width varies significantly									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php									Month: July		Year: 2018		
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	◉	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	⊗	>1	Severe Drought			Moderate Drought		Normal			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			
☒ Yes	☐ Clear, natural line impressed on the bank	☐ Sediment deposition	☐ Sediment sorting	
☐ No	☐ Changes in the character of soil	☐ Water staining	☐ Scour	
Weaker definition of BBS upstream	☐ Shelving	☒ Presence of flood litter/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes City/County: Montgomery Sampling Date: 8/1/18
Applicant/Owner: SHA State: MD Sampling Point: RS-WET
Investigator(s): RL & MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0-1%
Subregion (LRR or MLRA): MLRA 148 Lat: 39°01'01.38"N Long: 77°05'55.00"W Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0-3% slopes, occasionally flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Significant rainfall & flooding the prior 2 weeks

Photos 1995 - 1999

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (inches): 0-1"
Water Table Present?	Yes ☒	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: feature previously IDed as W75M in 2005 → verified for IRUM in 2015

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 195-WET

Tree Stratum (Plot size: 15')		Absolute % Cover	Dominant Species?	Indicator Status
1. Am. Elm	Ulmus americana	35	Y	FACW
2. Pin Oak	Quercus palustris	15	Y	FACW
3. Green Ash	Fraxinus pennsylvanica	10	N	FACW
4.				
5.				
6.				
		60	= Total Cover	
50% of total cover: ~~0.0~~ 30		20% of total cover: ~~0.0~~ 12		

Sapling Stratum (Plot size:)				
1.				
2.				
3. None				
4.				
5.				
6.				
		0	= Total Cover	
50% of total cover: 0.0		20% of total cover: 0.0		

Shrub Stratum (Plot size: 15')				
1. Multiflora rose	Rosa multiflora	5	Y	FACU
2.				
3.				
4.				
5.				
6.				
		5	= Total Cover	
50% of total cover: ~~0.0~~ 2.5		20% of total cover: ~~0.0~~ 1		

Herb Stratum (Plot size: 15')				
1. Stiltgrass	Microstegium vimineum	50	Y	FAC
2. Green Ash	Fraxinus pennsylvanica	3	N	FACW
3. ~~Poison ivy~~	Parthenocissus quinquefolia	15	N	OBL
4. Multiflora	Rosa multiflora	2	N	FACU
5. Orchard Grass	Leersia oryzoides	20	Y	OBL
6. Barnyard	Echinochloa crus-galli	5	N	FAC
7.				
8.				
9.				
10.				
11.				
		95	= Total Cover	
50% of total cover: ~~0.0~~ 47.5		20% of total cover: ~~0.0~~ 19		

Woody Vine Stratum (Plot size: 15')				
1. Honeysuckle	Lonicera japonica	5	Y	FAC
2.				
3.				
4.				
5.				
		5	= Total Cover	
50% of total cover: ~~0.0~~ 2.5		20% of total cover: ~~0.0~~ 1		

Persicaria

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point: 19 S-WET

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5Y 4/2	100					Silt Loam	
6-12	5Y 4/2	85	7.5YR 5/6	15	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland ~0.5AC Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use forested Distance to nearest roadway or other development 60-80 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 19S

Latitude _____ Longitude _____

Prepared by: MRS Date 8/1/18

Wetland Impact:
Type PFO Area ~0.5 AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓			✓	
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓			✓	
Nutrient Removal	✓			✓	
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane		**Feature ID:** 19T	**Stream Order:**
Date: 8/1/18	**State:** MD	**Photos:** 0002 0007, 0005-0007 (9/6/18)	
Crew: RL + MRS	**County:** Montgomery	**Last Flag Number:** Bluetine Stream	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Originates at two large culverts under 495,			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Culvert	Downstream: Rock Creek (19K)	Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 12'	☒ Silts	☒ Sands	☒ Muck	RB: Forest
☐ Artificial (man-made)	Depth: > 1"	☐ Cobbles	☒ Gravel	☒ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Rip-rap	LB: Forest
☐ Other:	Unstable	Side slope: ☒ ≥1:1 ☐ 2:1 ☒ 3:1 ☒ ≤4:1			
Notes: Armored near culvert, REACH INSIDE HIGHWAY NOT AS INSIDED					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: July	Year: 2018
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	⊗	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: 495/270 MANAGED LANES City/County: MONTGOMERY Sampling Date: 8/16/18

Applicant/Owner: SHA State: MD Sampling Point: 19U-WET

Investigator(s): MRS/EVG Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0-5%

Subregion (LRR or MLRA): MLRA 148 Lat: 39°00'50.27"N Long: 77°05'36.85"W Datum:

Soil Map Unit Name: Codorus silt loam, 0-3% slopes, occasionally flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Backswamp swale against roadway embankment

Photos 4002-4011

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 0-6"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0->12"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0-12"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland is a backswamp swale up against the roadway embankment. Many areas have up to 6" standing water while others are dry.

196-wet

Sampling Point: _____

VEGETATION (Four Strata) – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15' radius)			
1. Platanus occidentalis	70	Y	FAC
2. Acer rubrum	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	50 100	= Total Cover	20
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. ~~Lindera~~			
2. Lindera benzoin	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15	= Total Cover	
Herb Stratum (Plot size: 15' radius)			
1. Green ash seedling	10	Y	FACW
2. Fraxinus pensylvanica			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: 15' radius)			
1. Grape; Vitis sp.	10		NI
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ⊗ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

little/no herbaceous understory

SOIL

Sampling Point: 19 U-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	80	10YR 4/4	20			SILTY	
4-10	7.5YR 4/4	100					SANDY SILT	NO REDOX
10-14	7.5YR 4/4	100					CLAY SILT	NO REDOX

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ○

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.65Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development 90'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 194

Latitude _____ Longitude _____

Prepared by: MMS Date 8/16/18

Wetland Impact:
Type PFO Area 0.65 Ac

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓		7,8,9		
Floodflow Alteration	✓		4,5,6,7,8,9,10,11,13,18	✓	
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓		1,2,3,4,5,7,9,10,12	✓	
Nutrient Removal	✓		3,4,5,7,10,11		
Production Export	✓		1,2,4,12		
Sediment/Shoreline Stabilization		✓	1,4		
Wildlife Habitat		✓	4,5,7,8,17,		
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		**Feature ID:** 19V	**Stream Order:**
Date: 9/6/18	**State:** MD	**Photos:** 0001 - 0004	
Crew: MRS / EYG	**County:** Montgomery	**Last Flag Number:** 19V-SHOB	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: large stream with abundant flow - enters culvert under 495 to flow into Rock Creek			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: unknown - outside study area Downstream: Rock Creek (19K) through culvert under 495 Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☒	Natural Channel Shape	Width: 10'-16'		Silts	☒	Sands		Muck	RB: forest
	Artificial (man-made)	Depth: 0.1'-2.0'	☒	Cobbles	☒	Gravel		Other:	
☒	Manipulated (man-altered)	Bank Erosion/stability:		Bedrock	☒	Concrete			LB: forest
	Other:	stable/armored	Side slope: ☒ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1						

Notes: channel stabilized/armored

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: August Year: 2018													
☒	No rain		0-0.5										X				
	Light rain	☒	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
	Heavy Rain		>1	Severe Drought			Moderate Drought		Normal			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					
☒	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/debris	☒	Observed/predicted flow events
			Vegetation matted down, bent, or absent	☒	Destruction of terrestrial veg.	☒	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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495 270 MANAGED LANES City/County: MONTGOMERY Sampling Date: 9/6/18
Applicant/Owner: SHA State: MD Sampling Point: 19W-WET
Investigator(s): MRS, EVG Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 145 Lat: 39.014871 Long: -77.096240 Datum: NAD83
Soil Map Unit Name: Codorus silt loam, 0-3% slopes, occasionally flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? No Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ⊗	No ○	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ⊗	No ○	
Wetland Hydrology Present?	Yes ⊗	No ○	

Remarks:
PHOTO #: 8-10
small wetland in open area ~~surface~~ surrounded by forest in neighborhood Park

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (inches): 0"-0.5"
Water Table Present?	Yes ☐	No ☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ⊗ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
PERCHED SURFACE SATURATION.

19W
Wet

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: _____

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. RIVER BIRCH Betula nigra	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		

50% of total cover: ~~0.0~~ 10 20% of total cover: ~~0.0~~ 4

Sapling Stratum (Plot size: 10')			
1. GREEN ASH Fraxinus pennsylvanica	3	Y	FACW
2. ELM SP. Ulmus sp.	3	Y	*
3.			
4.			
5.			
6.			
	6 = Total Cover		

50% of total cover: ~~0.0~~ 3 20% of total cover: ~~0.0~~ 1.2

Shrub Stratum (Plot size: 10')			
1.			
2.			
3. NONE			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: ~~0.0~~ 20% of total cover: ~~0.0~~

Herb Stratum (Plot size: 10')			
1. STILTGRASS Microstegium vimineum	75	Y	FAC
2. JEWELWEED Impatiens capensis	20	N	FACW
3. SOFT RUSH Juncus effusus	20	N	FACW
4. WHITE GRASS Leersia virginica	5	N	FACW
5. PERSICARIA PUNCTATA.	5	N	FACW
6. PERSICARIA VIRGINIANA	5	N	FAC
7. PORCELAIN BERRY	5	N	NI
8. ↳ Ampelopsis brevipedunculata			
9.			
10.			
11.			
	67.5 0 135 = Total Cover		

50% of total cover: ~~0.0~~ 20% of total cover: ~~0.0~~ 27

Woody Vine Stratum (Plot size: 10')			
1.			
2.			
3. NONE			
4.			
5.			
	~~0~~ = Total Cover		

50% of total cover: ~~0.0~~ 20% of total cover: ~~0.0~~

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☑ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ⊗ No ○

Remarks: (Include photo numbers here or on a separate sheet.)
* Elm was not identified to species. Even if sp. was not FAC or wetter and the sp. was included in dominance test, result is 75%.

SOIL Sampling Point: 19W-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5Y 3/2	80	2.5Y 5/6	20	C	M, PL	SANDY SILT	
5-10	7.5Y 3/1	90	2.5Y 5/6	10	C	PL	SILT	
10-20	2.5Y 3/1	95	5Y 5/6	5	C	PL	SILT	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ○

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland ~0.05AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Meadow + forest Distance to nearest roadway or other development

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 19W

Latitude Longitude

Prepared by: MRS Date 9/6/18

Wetland Impact:
Type PFO Area ~0.05AC

Evaluation based on:
Office Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		Feature ID: 19K	Stream Order:
Date: 10/26/18	State: MD	Photos: 2665	
Crew: MRS/MBS/KJH	County: Montgomery	Last Flag Number: 19K-2	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	☒ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: feature is dry, SW pipe outfall

Hydrologic Connectivity –	Upstream: pipe outfall	Downstream: wetland 190	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3.0'	☒ Silts	☒ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 0.0'-0.1'	☐ Cobbles	☒ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		
☐ Other:	moderate erosion	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			LB: forest

Notes: straight, eroded channel originating at SW outfall pipe

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: Sept Year: 2018													
☒	No rain	☒	0-0.5	○	○	○	○	○	○	○	○	○	○	○	☒	○	
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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							
☒ 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/debris	☐	Observed/predicted flow events
	☒	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☒	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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lane Study City/County: Montgomery Sampling Date: 10/26/18
Applicant/Owner: MD SHA State: MD Sampling Point: 19Y-west
Investigator(s): MRS/MBS Section, Township, Range:
Landform (hillslope, terrace, etc.): Channel on floodplain Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 148 Lat: 39.017008 Long: -77.058537 Datum: NAD 83
Soil Map Unit Name: Codorus silt loam 0-3% slope NWI classification: PEMA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? No Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes [X] No [ ]
Hydric Soil Present? See note * Yes [ ] No [ ]
Wetland Hydrology Present? Yes [X] No [ ]

Is the Sampled Area within a Wetland? Yes [X] No [ ]

Remarks: wetland is a wide area of surface water in-line with intermittent channel 19R, which flows in and out of wetland 19Y

Vegetation is dense pickerelweed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [X] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [X] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [X] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [X] No [ ] Depth (inches): 0-10"
Water Table Present? Yes [X] No [ ] Depth (inches): 0"
Saturation Present? (includes capillary fringe) Yes [X] No [ ] Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: up to 1.0' of standing water in wetland

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 19Y-wet

Tree Stratum (Plot size: 10' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (Plot size: 10' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (Plot size: 10' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (Plot size: 10' radius)			
1. Pickerelweed Pontederia cordata	90	Y	OBL
2. Carex lurida	5	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	475 95 = Total Cover		19

50% of total cover: 0.0 20% of total cover: 0.0

Woody Vine Stratum (Plot size: 10' radius)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ⊗ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 19Y-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
	No soil sample taken - surface water too deep to collect a soil profile							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◯ No ◯

Remarks:

Soils are under persistent shallow surface water, an aquatic moisture regime and are therefore hydric by definition.

Wetland Function-Value Evaluation Form

Total area of wetland 0.06 Ac Human made? No Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 85 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 19Y

Latitude 39.017008 Longitude -77.098537

Prepared by: MRS Date 10/26/18

Wetland Impact:
Type PEM Area 0.06Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration	✓				
Fish and Shellfish Habitat	✓				
Sediment/Toxicant Retention	✓			✓	
Nutrient Removal	✓			✓	
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓			✓	
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

* Refer to backup list of numbered considerations.

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 208	**Stream Order:** 2
Date: 4-11-2018	**State:** MD	**Photos:** 195-196, 207-208 (outside soundwall)	
Crew: MBS/CCO	**County:** MONTGOMERY	**Last Flag Number:** 7 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, HOWEVER WRACK LINE INDICATES HIGH PERIODIC FLOW

Hydrologic Connectivity –	Upstream: 2' PIPE	Downstream: 2' CULVERT	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

UNDER SOUNDWALL + CONTINUES OUTSIDE SOUNDWALL THROUGH 2' PIPE, RIPRAP CHANNEL, INTO ANOTHER 2' PIPE

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5'	☒ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 3"	☒ Cobbles	☒ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: MODERATE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: MARCH Year: 2018
●	No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 20C	**Stream Order:** 3
Date: 4-11-2018	**State:** MD	**Photos:** 200-202	
Crew: MBS/CCO	**County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING WITH SIGNIFICANT AMOUNT OF WATER IN CHANNEL DURING MODERATE DROUGHT CONDITIONS			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 3' PIPE - 1/2 SILTED-IN	Downstream: 4' CULVERT,	Adjacent/Abutting: None

Feature Description: *(check all that apply)* CONVERGES WITH FEATURE 20D (ANOTHER PERENNIAL CHANNEL)

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-3'	☒ Silts	☑ Sands	☐ Muck	RB: SCRUB/SHRUB
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: MODERATE	☐ Bedrock	☐ Concrete		LB: SCRUB/SHRUB
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: MARCH Year: 2018
⊗ No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 20D	**Stream Order:** 3
Date: 4-11-2018	**State:** MD	**Photos:** 197-199	
Crew: MBS/CCO	**County:** MONTGOMERY	**Last Flag Number:** 3A&3B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING AT HIGH LATE DURING MODERATE DROUGHT			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: CONTINUES OUTSIDE ROW	Downstream: 4' CULVERT,	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)* CONVERGES WITH FEATURE 20C (ANOTHER PERENNIAL STREAM)

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: HEDGEROW
☐ Other:	FLOODING	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: MARCH Year: 2018												
⊗ No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 20E	**Stream Order:** 2
Date: 4-11-2018	**State:** MD	**Photos:** 203-206	
Crew: MBS/CCO	**County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, BUT CLEAR FLOW LINE ON BANKS INDICATES HIGH FLOW FROM PIPE			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 2' PIPE	Downstream: 2' PIPE	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW (BAMBOO)
☐ Artificial (man-made)	Depth: 2' BANK	☐ Cobbles	☒ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		LB: HEDGEROW (BAMBOO)
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: MARCH Year: 2018
⊗ No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1,45	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21B	**Stream Order:**
Date: 4-12-2018	**State:** MD	**Photos:** 0212-0213	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Large, well-defined channel with constant flow and OHWM			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 20D	Downstream: 21C	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 10-20'	☒ Silts	☒ Sands	☐ Muck	RB: EMERGENT VEGETATION
☐ Artificial (man-made)	Depth: 6-18"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: MODERATELY STABLE	☐ Bedrock	☒ Concrete		LB: FOREST
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: MARCH Year: 2018												
⊗ No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21C	**Stream Order:**
Date: 6-6-2018	**State:** MD	**Photos:** 0214-17	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** N/A	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Large, well-defined channel with constant flow and OHWM			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 21L, 21B, 21V, 21I, 21M, 21H, 21F, 21G	Downstream: 22AA	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 10-30'	☒ Silts	☒ Sands	☐ Muck		RB: FOREST
☐ Artificial (man-made)	Depth: 4-12"	☒ Cobbles	☒ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability: RANGE STABLE → UNSTABLE	☐ Bedrock	☒ Concrete			LB: FOREST
☐ Other:		Side slope: ☒ ≥1:1	☒ 2:1	☒ 3:1	☐ ≤4:1	
Notes:						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: MAY Year: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☒ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:

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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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21D	**Stream Order:** 2
Date: 4-12-2018	**State:** MD	**Photos:** 0218-0219	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 3 (CENTERLINE)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, BUT WATER LINE + SEDIMENT DEPOSITION INDICATE THAT POOLED FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 2 concrete-lined ephemeral channels	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1'-3'	☒ Silts	☒ Sands	☐ Muck	RB: MEADOW GRASSES, scrub/shrub
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☒ Concrete		LB: SCRUB SHRUB, Hedgerow
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: IN RIVER RD INTERCHANGE (NE QUADRANT), INNERLOOP I-495 • Flows through 3" pipe into NW Quadrant; US portion concrete-lined					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-rankings/index.php)	Month: MARCH Year: 2018
● No rain	● 0-0.5	○ -6 ○ -5 ○ -4	Severe Drought
○ Light rain	○ 0.5-1	○ -3 ○ -2	Moderate Drought
○ Heavy Rain	○ >1	● -1.45 ○ 0 ○ 1	Normal
		○ 2 ○ 3	Moderately Wet
		○ 4 ○ 5 ○ 6	Severely Wet

Non-tidal tributary has: ***(check all that apply; include photos for each & list photo #)***

Bed and Banks	Ordinary High Water Mark					
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21F	**Stream Order:** 2
Date: 4-13-2018	**State:** MD	**Photos:** 2540-2541	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 21F-17a/17b	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NOT FLOWING DURING FIELD VISIT, HOWEVER WATER LINE, SCOUR, & WRACK LINE INDICATE HIGH PERIODIC FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: CONTINUES OUT OF ROW	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5-8'	☐ ☒ Silts	☒ Sands	☐ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 8"	☐ ☒ Cobbles	☒ Gravel	☒ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ ☐ Bedrock	☐ Concrete	RIPRAP	LB: FOREST
☐ Other:	MODERATE	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: PIPED UNDER SOUNDWALL/I-495 WEST OF BRADLEY BLVD./EAST OF RIVER RD. — BOTH INLAND & FLOODPLAIN					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.php) Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1,45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 216	**Stream Order:** 2
Date: 4-13-2018	**State:** MD	**Photos:** 2542-2543	
Crew: MBS/STF	**County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, HOWEVER DAMP SILT DEPOSITED ON BED INDICATES SIGNIFICANT PERIODIC FLOW

Hydrologic Connectivity –	Upstream: 18" DIAM. RPE	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-5'	☒ Silts	☐ Sands	☐ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☐ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☒ Concrete		LB: FOREST
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: EAST OF RIVER RD ON I-495 INNERLOOP

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers.php) Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21H	**Stream Order:** 2
Date: 4-13-2018	**State:** MD	**Photos:** 2544-2545	
Crew: MBS/STF	**County:** MONTGOMERY	**Last Flag Number:** 21H-6a/6b	

find

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ⊗ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
	○ RPW – Perennial (Flowing year round)		○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: NOT FLOWING DURING FIELD INVESTIGATION, HOWEVER WATER LINE + WRACK LINE INDICATE HIGH PONDING FLOW

Hydrologic Connectivity –	Upstream: CONTINUES OUTSIDE ROW and 21R	Downstream: 21C	Adjacent/Abutting: none

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4'	☒ Silts	☐ Sands	☐ Muck	RB: SCRUB/SHRUB
☐ Artificial (man-made)	Depth: 12"	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete – PIECES		LB: SCRUB/SHRUB
☐ Other:	ERODING	Side slope: ☒ ≥1:1	☒ 2:1	☐ 3:1 ☐ ≤4:1	

Notes: EAST OF RIVER RD. ON I-495 INNERLOOP

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270		**Feature ID:** 21I	**Stream Order:** 3
Date: 4-17-2018	**State:** MD	**Photos:** 2552-2554	
Crew: MBS/CCO	**County:** MONTGOMERY	**Last Flag Number:** 2A+B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING RAPIDLY DURING FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-7'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: MODERATE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: SB I-270

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21J	**Stream Order:** 3
Date: 4-18-2018	**State:** MD	**Photos:** 2559-2560	
Crew: MKS/STF	**County:** MONTGOMERY	**Last Flag Number:** 2ASB	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: WIDE CHANNEL FLOWING RAPIDLY AT TIME OF FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 10' PIPE CULVERT (21B)	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 10-20'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 2-6"	☐ Cobbles	☒ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: WEST OF I-270/I-495 INTERCHANGE ON OUTERLOOP I-495

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: MARCH Year: 2018												
●	No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21K	**Stream Order:** 2
Date: 4-18-2018	**State:** MD	**Photos:** 2561-2562	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 2ABB	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING FIELD VISIT >48 HRS. POST-RAINFALL, MODERATE FLOW RATE, LOW VOLUME			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 4' PIPE CULVERT (21A)	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-12'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 0.5"-1.5'	☒ Cobbles	☒ Gravel	☒ Other: PLACED STONE	
☒ Manipulated (man-altered)	Bank Erosion/stability: MODERATE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: WEST OF BRADLEY BLVD. ON OUTERLOOP I-495

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html) Month: MARCH Year: 2018											
●	No rain	●	0-0.5	○	○	○	○	○	●	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community	
	☐ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:	

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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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21C	**Stream Order:** 3
Date: 4-18-2018	**State:** MD	**Photos:** 2563-2564, 446-448	
Crew: MKS/SSF	**County:** MONTGOMERY	**Last Flag Number:** 2A&B / 5 (E side of highway)	

Find

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: WATER FLOWING RAPIDLY AT TIME OF FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 8' PIPE CULVERT	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-6'	☒ Silts	☒ Sands	☐ Muck	RB: HERBACEOUS VEG.
☐ Artificial (man-made)	Depth: 1-8"	☒ Cobbles	☒ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		LB: HERBACEOUS VEG.
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: WEST OF BRADLEY BLVD. ON OUTERLOOP I-495					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

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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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 21M	**Stream Order:** 2
Date: 4-18-2018	**State:** MD	**Photos:** 2565	
Crew: MBS/SSF	**County:** MONTGOMERY	**Last Flag Number:** 2 (centerline)	

findl

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
	○ RPW – Perennial (Flowing year round)		
Describe rational for hydrologic class: FLOWING SWIFTLY AT TIME OF FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 2' PIPE	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-4'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 1/2"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: HEDGEROW
☐ Other:	STABLE	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: WEST OF BRADLEY BLVD ON OUTERLOOP I-495					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1,45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community
	☐ Leaf litter disturbed	☐ Presence of wrack line	☐ Other:

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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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 1495/1270 Managed Lanes Study City/County: Bethesda / Montgomery Sampling Date: 6/26/18
Applicant/Owner: SHA State: MD Sampling Point: ZIP
Investigator(s): MBS/SLG Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR or MLRA): MLRA 149 Lat: 38.998935 Long: -77.157223 Datum: NAD83
Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Photos
1881 - 1882 -

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 12"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 28P

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	90	Y	FAC
2.			
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot size:)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size:)			
1. Lindera benzoin	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size:)			
1. Cinna arundinacea	25	Y	FACW
2. Boehmeria cylindrica	10	N	OBL
3. Microstegium vimineum	5	N	FAC
4. Geum canadense	5	N	FACU
5. Carex sp.	5	N	—
6. Fraxinus pensylvanica	15	Y	FACW
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 33	20% of total cover: 13		
Woody Vine Stratum (Plot size:)			
1. Vitis riparia	5	Y	FACW
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 21P

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	60	7.5YR 6/4	40	C	M	SILTY CLAY	
6-10	2.5Y 5/1	50	7.5YR 6/4	50	C	M,PL	CLAY LOAM	
10-16	5YR 8/5	100					SANDY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 acre Human made?_____ Is wetland part of a wildlife corridor? ✓ or a "habitat island"?_____

Adjacent land use RESIDENTIAL Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 21P

Latitude 38.998935 Longitude -77.157223

Prepared by: MES/SLY Date 6-20-18

Wetland Impact:
Type PFO Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Mo. Sampling Date: 7/11/18
Applicant/Owner: SHA State: MD Sampling Point: 21Q - WET
Investigator(s): KSH, CAS Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2%
Subregion (LRR or MLRA): 148 Lat: 38.9982470o Long: -77.1571439b Datum: WGS84
Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Photos 3114 - 3115

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 21Q-WET

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	50	Y	FACW
2. Acer rubrum	20	Y	FAC
3. Fraxinus pennsylvanica	5	N	FACW
4. Taxodium distichum	5	N	OBL
5.			
6.			
	80	= Total Cover	
50% of total cover: 40	20% of total cover: 16		

Sapling Stratum (Plot size: 20')			
1. None			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 20')			
1. Lindera benzoin	30	Y	FAC
2. Ulmus americana	10	Y	FACW
3.			
4.			
5.			
6.			
	40	= Total Cover	
50% of total cover: 20	20% of total cover: 8		

Herb Stratum (Plot size: 10')			
1. Saururus cernuus	90	Y	OBL
2. Symplocarpus foetidus	20	N	OBL
3. Toxicodendron radicans	5	N	FAC
4. Alliaria petiolata	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	117	= Total Cover	
50% of total cover: 58.5	20% of total cover: 23.4		

Woody Vine Stratum (Plot size: 20')			
1. Parthenocissus quinquefolia	2	N	FACU
2.			
3.			
4.			
5.			
	2	= Total Cover	
50% of total cover: 1	20% of total cover: 0.4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Buttressed trees within wetland

SOIL Sampling Point: 21Q-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 4/2	100					silt	
2-6	7.5YR 4/2	70	7.5YR 4/6	30	C	M	silt	
6-9	7.5YR 4/1	60	7.5YR 4/6	40	C	M	↓	
9-14	10YR 5/2	80	7.5YR 5/6	20	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Not sampled. non-invasive letters have not been sent

Assumed hydric based on veg & hydrology

*Sampled 11/7/18

Wetland Function-Value Evaluation Form

Total area of wetland 0.07Acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest & Roadway Distance to nearest roadway or other development 90'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? 2nd order stream riparian wetland

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 21Q

Latitude 36.99824 Longitude -77.15714

Prepared by: KSH Date 7/11/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration	X				
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495 / I-270 Managed Lanes Study		**Feature ID:** 21R	**Stream Order:**
Date: 7/11/18	**State:** MD	**Photos:** 3116	
Crew: KJH, CAS	**County:** Mo.	**Last Flag Number:** 21R-3A3B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ◉ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
	○ RPW – Perennial (Flowing year round)		○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No Flow during site visit

Hydrologic Connectivity –	Upstream: Uplands	Downstream: 21H	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-8'	☒ Silts	☐ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 4-8"	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	severe erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Erosion created from golf course drainage pipes.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: June Year: 2018												
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes study City/County: Montgomery CO Sampling Date: 9/21/18
Applicant/Owner: SHA State: MD Sampling Point: 21T-WET
Investigator(s): KJH, SLY Section, Township, Range:
Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): CONVEX Slope (%): 0
Subregion (LRR or MLRA): 148 Lat: 38.99913945 Long: -77.15715071 Datum: WGS84
Soil Map Unit Name: BALTIMORE SILT LOAM, 0 to 3 PERCENT NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
photos 4238-4240

seep wetland at base of hillslope.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1
Water Table Present?	Yes ✓	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 21T-wet

Tree Stratum (Plot size: 10' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	20	Y	FACW
2. Acer rubrum	30	Y	FAC
3.			
4.			
5.			
6.			
	50	= Total Cover	

50% of total cover: 25 20% of total cover: 10

Sapling Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10' R)			
1. Persicaria longiseta	5	Y	FAC
2. Euonymus fortunei	15	Y	FACU
3. Pilea pumila	2	N	FACW
4. Rumex Crispus	5	Y	FAC
5. Microstegium vimineum	5	Y	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	32	= Total Cover	

50% of total cover: 16 20% of total cover: 6

Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 21T-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 3/2	90	5YR 3/4	10	C	PL,M	clay	
6-13	2.5Y 4/1	60	5YR 4/4	40	C	PL,M	clay loam	
13-20	5Y 5/1	60	5YR 5/6	40	C	PL,M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"?

Adjacent land use Forest, Roadway Distance to nearest roadway or other development 60'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? 2nd order stream Riparian zone

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 21T

Latitude 38.9991 Longitude -77.15715

Prepared by: KSH Date 7/19/18

Wetland Impact:
Type Area

Evaluation based on:
Office Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 21U	**Stream Order:**
Date: 7/20/18	**State:** MD	**Photos:** 449-552	
Crew: KJH, EG	**County:** Mo.	**Last Flag Number:** 211-4a/4b	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing in July. 0.5" rain 3 days prior			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert	Downstream: 21B	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5-15'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3-6"	☒ Cobbles	☒ Gravel	☒ Other: riprap	
☒ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: June Year: 2018												
◉ No rain	◉ 0-0.5	○ -6	○ -5	○ -4	○ -3	○ -2	○ -1	○ 0	◉ 1	○ 2	○ 3	○ 4	○ 5	○ 6
○ Light rain	○ 0.5-1	Severe Drought			Moderate Drought		Normal			Moderately Wet		Severely Wet		
○ Heavy Rain	○ >1													

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 21V	**Stream Order:**
Date: 7/26/18	**State:** MD	**Photos:** 0457 - 0458	
Crew: KSH, ET	**County:** Mo.	**Last Flag Number:** 7a/7b	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ◉ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Completely dry on 7/18. Flowing on 7/27 - However, 7" of rain week prior

Hydrologic Connectivity –	Upstream: outside study Area	Downstream: 21C (Thomas Branch)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-6'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3-6"	☒ Cobbles	☑ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	moderate erosion	Side slope: ☒ ≥1:1 ☑ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: June Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22A	**Stream Order:** 3
Date: 4-17-2018	**State:** MD	**Photos:** 0220-0221	
Crew: MES/SJF	**County:** MONTGOMERY	**Last Flag Number:** 6 (center line)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING FIELD INVESTIGATION, UNDER MODERATE DROUGHT CONDITIONS			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 3' PIPE & CONCRETE BOTTOM CHANNEL	Downstream: 3' PIPE	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☒ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: HEDGEROW
☐ Other:	STABLE	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition, NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: APRIL Year: 2018												
⊗ No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-496/270 Managed Lanes Study		**Feature ID:** 22AA	**Stream Order:**
Date: 5/15/2018	**State:** MD	**Photos:** 2753-2754	
Crew: MBS/AGA	**County:** Montgomery	**Last Flag Number:** None (LIDAR data)	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of site visit; wide channel; mapped on DNR/NWI GIS; part of Cabin John Creek			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: outside study area	Downstream: outside study area	Adjacent/Abutting: 22HH; 22DD; 22KK

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 30'		☑ Silts	☑ Sands	☐ Muck				RB: forest
☐ Artificial (man-made)	Depth: 10"		☑ Cobbles	☐ Gravel	☐ Other:				
☐ Manipulated (man-altered)	Bank Erosion/stability:		☑ Bedrock	☐ Concrete					LB: forest
☐ Other:	Stable		Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1						
Notes: Cabin John Creek									

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: April	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Stream Assessment Form (Form 1)

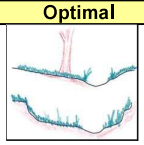
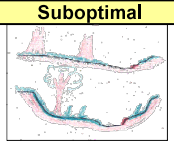
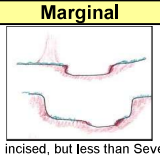
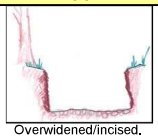
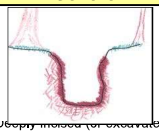
Unified Stream Methodology for use in Virginia

For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	~~SK~~ R3	02070008	8/20/2018	~~SK~~ 22AAA		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac River

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

	Conditional Category					
	Optimal	Suboptimal	Marginal	Poor	Severe	
Channel Condition	 Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	 Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	 Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may bevertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which contribute to stability.	 Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	 Deeply incised (or excavated), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	1.6
NOTES>>	The majority of the stream banks have significant evidence of erosion.					

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Conditional Category							
	Optimal	Suboptimal		Marginal		Poor		NOTES>> The buffer of this stream has mature trees with significant canopy cover and has an un-maintained understory with very dense vegetation
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	
		High	Low	High	Low	High	Low	
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5	

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	100%						100%	
	Score >	1.1							
									CI= (Sum % RA * Scores*0.01)/2
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI > 1.10 CI
	Score >	1.1							Lt Bank CI > 1.10 1.10

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

	Conditional Category				
	Optimal	Suboptimal	Marginal	Poor	NOTES>> Habitat elements are marginal for the majority of the stream.
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	CI
Score	1.5	1.2	0.9	0.5	0.90

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R3	0207008	8/20/18	SK		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> The stream has been straightened

	Conditional Category						
	Negligible	Minor		Moderate		Severe	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.	
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	0.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.82
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	0
CR = RCI X LF X IF	

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22B	**Stream Order:** 1
Date: 4-13-2018	**State:** MD	**Photos:** 2548-2549	
Crew: MBS/SJT	**County:** MONTGOMERY	**Last Flag Number:** 3 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: 2 EPHEMERAL RIPRAP CHANNELS CONVERGE TO FORM LARGER RIPRAP CHANNEL WITH HIGH LEVEL OF DEBRIS IN			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 2 EPHEMERAL RIPRAP CHANNELS	Downstream: 22C WRACK LINE	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: APRIL Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** ZZ-BB	**Stream Order:**
Date: 6/15/18	**State:** MD	**Photos:** 2971 - 2972	
Crew: KJH SDE	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ◉ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No water in channel / weak bed & bank at upstream portion

Hydrologic Connectivity –	Upstream: Mowed Lawn	Downstream: ZZ-CC	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 1-4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 0-4"	☑ Cobbles	☑ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Minor erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: sections of channel filled w/ debris from adjacent land owner

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: May Year: 2018 — http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495 Northern Express Lanes City/County: Fairfax County Sampling Date: 8/16/2018
Applicant/Owner: Virginia Department of Transportation State: VA Sampling Point: ~~DP-SP~~ 22BBB
Investigator(s): Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR or MLRA): LLRS Lat: 38.961246° Long: -77.186870° Datum: NAD83
Soil Map Unit Name: Glenelg silt loam, 25 to 45 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

One of highest years of rainfall on record.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 2"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~DP-SP~~ 22BBB

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	45	Y	FAC
2. Linodendron tulipifera	5	N	FACU
3. Fraxinus pennsylvanica	5	N	FACW
4.			
5.			
6.			
	55	= Total Cover	

50% of total cover: 27.5 20% of total cover: 11

Sapling Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	35	Y	FACW
2. Acer rubrum	5	N	FAC
3.			
4.			
5.			
6.			
	40	= Total Cover	

50% of total cover: 20 20% of total cover: 8

Shrub Stratum (Plot size: 15 ft)			
1. Lindera benzoin	25	Y	FAC
2.			
3.			
4.			
5.			
6.			
	25	= Total Cover	

50% of total cover: 12.5 20% of total cover: 5

Herb Stratum (Plot size: 5 ft)			
1. Microstegium vimineum	60	Y	FAC
2. Ligustrum japonicum	5	N	UPL
3. Lonicera japonica	5	N	FACU
4. Acer rubrum	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	= Total Cover	

50% of total cover: 37.5 20% of total cover: 15

Woody Vine Stratum (Plot size: 30 ft)			
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	140	x 3 =	420
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	195 (A)		565 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: ~~DP-SP~~ 22BBB

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR4/2	90%	10YR6/6	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22C	**Stream Order:** 1
Date: 4-13-2018	**State:** MD	**Photos:** 2546-2547	
Crew: MBS/SLE	**County:** MONTGOMERY	**Last Flag Number:** 3 (CENTERLINE)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: WATER IN CHANNEL NOT FLOWING AT TIME OF INVESTIGATION, BUT HIGH LEVEL OF FLOW DEBRIS

Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: 3' PIPE	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☐ Concrete		LB: HEDGEROW
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: APRIL Year: 2018												
◉ No rain	◉ 0-0.5	○	○	○	○	○	◉	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 22-CC	**Stream Order:**
Date: 6/15/18	**State:** MD	**Photos:** 2973-2974, 2977	
Crew: KSH, SDF	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands ◉ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
	○ RPW – Perennial (Flowing year round)		

Describe rational for hydrologic class: Majority of channel is dry. No hydric soils. 1-4" standing water in portions of channel

Hydrologic Connectivity –	Upstream: Riparian channel	Downstream: 22-DD	Adjacent/Abutting: 22-BB, 22-EE

Feature Description: *(check all that apply)* draining uplands

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'-6'	☒ Silts	☒ Sands	☐ Muck		RB: Forest
☐ Artificial (man-made)	Depth: 1-6"	☒ Cobbles	☒ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability: severe/moderate erosion	☐ Bedrock	☒ Concrete			LB: Forest
☐ Other:		Side slope: ☒ ≥1:1	☐ 2:1	☐ 3:1	☒ ≤4:1	

Notes: Weak bed & bank just US & DS of Seven Locks Rd. (Photos 2975, 2976) Deeply incised at upstream section. 2978

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
◉ No rain	○ 0-0.5
○ Light rain	◉ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI **Month:** May **Year:** 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	○	○	○	○	○	○	◉	○	○	○	○	○
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22D	**Stream Order:** 1
Date: 4-13-2018	**State:** MD	**Photos:** 2550-2551	
Crew: MBS/SJT	**County:** MONTGOMERY	**Last Flag Number:** 2 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING AT TIME OF FIELD INVESTIGATION IN 6" RIVULET			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: UNDERGROUND/UNDER CONCRETE LINER TO FEATURE 22E	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2'	☐ Silts	☐ Sands	☐ Muck	RB: HEDGEROW
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☒ Concrete		LB: FOREST
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/drought/publications.php) Month: APRIL Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 22-DD	**Stream Order:**
Date: 6/15/18	**State:** MD.	**Photos:** 2979 - 2981	
Crew: KDH, SDF	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: shallow flowing water originates at culvert outfall			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: culvert outfall	Downstream: 22-AA	Adjacent/Abutting: 22-CC

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-8'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 1"-12"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: upper segment - concrete lined. downstream segment naturalized					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: May Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

VERIFIED
MBS 4/17/18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IRVM~~ Montgomery County City/County: Montgomery Co. Sampling Date: 11/10/17 4-17-18

Applicant/Owner: SHA State: MD Sampling Point ~~01-B-UPL~~ 22E-UPL

Investigator(s): AT, MN MBS/CCO Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98087 Long: -77.174816 Datum: NAD 83

Soil Map Unit Name: Glenelg silt loam, 3 to 8 % slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ____ No ✓**
Hydric Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____ No ✓	Depth (inches):
Water Table Present?	Yes ____ No ✓	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22E-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 01-B-UPL

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: ____ 20% of total cover: ____

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: ____ 20% of total cover: ____

Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: ____ 20% of total cover: ____

Herb Stratum (Plot size: 3x radius)			
1. Setaria faberi	15	✓	UPL
2. Schedonorus pratensis	25	✓	FACU
3. Andropogon virginicus	10	✓	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		

50% of total cover: 25 20% of total cover: 10

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: ____ 20% of total cover: ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	15	x 5 =	75
Column Totals:	50 (A)		215 (B)

Prevalence Index = B/A = 4.3

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

22E-UPL

SOIL

Sampling Point: ~~G1-B-UPL~~

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 4/4	100					Sol	Rejected @ 5" by rip rap

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ___ No ✓

Remarks:

VERIFIED MBS 4/17/2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 I270 - Montgomery County~~ City/County: Montgomery Co Sampling Date: ~~11/10/14~~ 4/17/2018

Applicant/Owner: SHA State: MD Sampling Point: ~~A1-B-WET~~ 22E-WET

Investigator(s): AT, MN- MBS/CCO Section, Township, Range:

Landform (hillslope, terrace, etc.): isolated depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98079 Long: -77.17473 Datum: NAD 83

Soil Map Unit Name: Glenelg silt loam, 3 to 8% slopes NWI classification: PEMIJ

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?**	Yes ✓ No
Hydric Soil Present?	Yes ✓ No		
Wetland Hydrology Present?	Yes ✓ No		

Remarks:

Isolated depression viewed by MDE and USACE

Photo #2557-2558

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1-2"
Water Table Present?	Yes ____	No ✓	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches):

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22E-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~A1 B WET~~

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Sapling Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: * irregular)			
1. Panicum virgatum	25	✓	FAC
2. Echinochloa muricata	30	✓	FACW
3. Juncus effusus	10		FACW
4. Schedonorus pratensis	15		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

* Plot follows limits of isolated depression

22E-WET

SOIL

Sampling Point: ~~01-B-WET~~

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0+	10YR4/2	70	7.5YR4/6	30	C	M	sicl	w/gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 182 sf Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use MOWED LAWN - ROW Distance to nearest roadway or other development 35'

Dominant wetland systems present NO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? ✓ If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? NONE Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22E-WET

Latitude 38.980805 Longitude -77.174737

Prepared by: MBS Date 4/17/18

Wetland Impact:
Type PEM Area 182 sf

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

*Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 22EE	**Stream Order:**
Date: 6/13/18	**State:** MD	**Photos:** 2970	
Crew: KJH SJF	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		◉ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No water in channel during site visit Deeply incised channel

Hydrologic Connectivity –	Upstream: culvert	Downstream: 22CC	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4-10'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 0-4"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☒ Concrete		LB: Forest
☐ Other:	Severe erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: May	Year: 2018
◉ No rain	○ 0-0.5	○ -6	○ -5	○ -4
○ Light rain	◉ 0.5-1	○ -3	○ -2	○ -1
○ Heavy Rain	○ >1	○ 0	◉ 1	○ 2
		Severe Drought	Moderate Drought	Normal
		○ 3	○ 4	○ 5
		Moderately Wet	Severely Wet	○ 6

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

VERIFIED 4-18-2018 MBS
(EXTENDED FEATURE)

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: I-495 I&VM-Montgomery County City/County: Montgomery Co Sampling Date: ~~11/21/18~~ 4-18-2018

Applicant/Owner: SHA State: MD Sampling Point: ~~A-L WET~~ 22F-WET

Investigator(s): AT, PN, AM MBS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 1-2

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98372 Long: -77.15802 Datum NAD83

Soil Map Unit Name: Calvert silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PEMA/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?** Yes ✓ No
Hydric Soil Present?	Yes ✓ No	
Wetland Hydrology Present?	Yes ✓ No	

Remarks:

Photo #: ~~47-To dump truck~~ 2566-2567

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ___	Depth (inches): 1-4"
Water Table Present?	Yes ___	No ✓	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches):

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22f - WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~0~~ 2, WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 3 linear)			
1. Echinochloa muricata	10	✓	FACW
2. Ludwigia sp. seedlings	15	✓	OBL
3. Ludwigia alternifolia	4		FACW
4. Glechoma hederacea	5		FACU
5. Andropogon hispidus	12	✓	FAC
6. Panicum dichotomiflorum	4		FACW
7. Juncus effusus	4		FACW
8.			
9.			
10.			
11.			
	54 = Total Cover		

50% of total cover: 27 20% of total cover: 10.8

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

22f-WET

SOIL

Sampling Point: ~~GH-L WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y4/3	100					SI	organics + rootlets present
1-4	2.5Y4/2	40	7.5YR4/6	20	C	M, PL	fscl	
	2.5Y4/3	40						
4-12	2.5Y4/2	85	5YR 4/6	5	C	M	sicl	
			7.5YR 4/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 acre Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use ROAD ROW - MOWN GRASS Distance to nearest roadway or other development 35'

Dominant wetland systems present NO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22f-WET

Latitude 38.983585 Longitude -77.157951

Prepared by: MBS Date 4-18-2018

Wetland Impact:
Type PEM Area 0.01 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 22 FF	**Stream Order:**
Date: 6/28/18	**State:** MD	**Photos:** 3107 - 3108	
Crew: KJH, RL	**County:** Mo.	**Last Flag Number:** NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	◉ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		◉ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Dry during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: sheet flow from culvert	Downstream: outside study Area flows to perennial stream	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3-5'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 0-6"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: ~~May~~ June Year: 2018
◉	No rain	○	0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○	
○	Light rain	◉	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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					
☒	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/debris	☐	Observed/predicted flow events
		☒	Vegetation matted down, bent, or absent	☒	Destruction of terrestrial veg.	☐	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:
Notes:					

VERIFIED MBS 4-18-2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 TRVM - Montgomery County~~ City/County: Montgomery Co. Sampling Date: 11/2/17

Applicant/Owner: SHA State: MD Sampling Point: ~~224~~ - UPL 224/226 - UPL

Investigator(s): AT, MN, AM MBS/SJF Section, Township, Range:

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2-3

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98382 Long: -77.15808 Datum: NAD83

Soil Map Unit Name: Catoctin silt loam, 0 to 3% slopes, occasionally flooded NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

Photo 19

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches):
Water Table Present?	Yes ____	No ✓	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches):

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22FF226-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~OL~~ ~~FAC~~ UPL

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	40	✓	FACU
2. Quercus rubra	25	✓	FACU
3. Acer rubrum	5		FAC
4.			
5.			
6.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		

Sapling Stratum (Plot size: 30' radius)			
1. Juniperus virginiana	5	✓	FACU
2. Acer rubrum	15	✓	FAC
3.			
4.			
5.			
6.			
	20	= Total Cover	
50% of total cover: 10	20% of total cover: 4		

Shrub Stratum (Plot size: 30' radius)			
1. Lonicera maackii	30	✓	UPL
2. Rosa multiflora	40	✓	FACU
3.			
4.			
5.			
6.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		

Herb Stratum (Plot size: 30' radius)			
1. Allium vineale	5	✓	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5	= Total Cover	
50% of total cover: 2.5	20% of total cover: 1		

Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	50	✓	FACU
2.			
3.			
4.			
5.			
	50	= Total Cover	
50% of total cover: 25	20% of total cover: 10		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 12.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	165	x 4 =	660
UPL species	30	x 5 =	150
Column Totals:	215 (A)		870 (B)

Prevalence Index = B/A = 4.05

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

US Army Corps of Engineers

Eastern Mountains and Piedmont – Version 2.0

22F/22G-UPL

SOIL

Sampling Point: ~~Ol-left~~ UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	80					SL	
	10YR 5/6	20						
3-12	10YR 5/6	100					SL	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ No ✓

Remarks:

VERIFIED MBS 4-18-2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I495/I270 MANAGED LANES STUDY

Project/Site: ~~I-495 I&M Montgomery County~~ City/County: Montgomery Co Sampling Date: 4-18-2018

Applicant/Owner: SHA State: MD Sampling Point: ~~WET~~ 226-WET

Investigator(s): ~~AT, MH, AM~~ MBS/STF Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale/seep Local relief (concave, convex, none): Concave Slope (%) 5-6

Subregion (LRR or MLRA): MLRA 148 Lat: 38.98395 Long: -77.15812 Datum: NAD83

Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?** Yes ✓ No
Hydric Soil Present?	Yes ✓ No	
Wetland Hydrology Present?	Yes ✓ No	

Remarks:

Photos 2568-2569

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓ No ___	Depth (inches): 1-2"
Water Table Present?	Yes ✓ No ___	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes ___ No ✓	Depth (inches):

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

226-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~01-K WET~~

Tree Stratum (Plot size: 30' linear)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	10	✓	OBL
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot size: 30' linear)			
1. Fraxinus pennsylvanica	15	✓	FACW
2. Acer rubrum	5	✓	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 30' linear)			
1. Rosa multiflora	10	✓	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30' linear)			
1. Impatiens capensis	6	✓	FACW
2. Allium vineale	4	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Woody Vine Stratum (Plot size: 30' linear)			
1. Lonicera japonica	5	✓	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ACRU, BUPA + DIVI in canopy but outside of plot

226-WET

SOIL

Sampling Point: ~~OL-E-WET~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y4/2	70	7.5YR4/6	30	C	M,PL	sicl	
3-12	2.5Y4/1	85	5YR 4/6	15	C	M	sicl	w/ coarse fragments

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.02 acre Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use forest Distance to nearest roadway or other development 32'

Dominant wetland systems present No Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 226-WET

Latitude 38.984088 Longitude -77.158076

Prepared by: MBS Date 4-18-2018

Wetland Impact:
Type PFO Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 Managed Lanes Study 6/28/18

Project/Site: ~~I-495 IRVM Montgomery County~~ City/County: Montgomery Co Sampling Date: ~~11/24/14~~

Applicant/Owner: SHA State: MD Sampling Point: ~~01 S WET~~ 22-GG-WBT

Investigator(s): ~~AT, MN, ANT~~ KSH, RL Section, Township, Range:

Landform (hillslope terrace etc.): swale Local relief (concave, convex, none): concave Slope (%): 1-2%

Subregion (LRR or MLRA): MLRA148 Lat: 38.9828 Long: -77.15719 Datum: NAD83

Soil Map Unit Name: Codorus silt loam, 0 to 3% slopes, occasionally flooded NWI classification: PEMIC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes 9/ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?** Yes ✓ No
Hydric Soil Present?	Yes ✓	No	
Wetland Hydrology Present?	Yes ✓	No	

Remarks:

- flows to short concrete flume to ~~01N~~ 222 Southern portion of wetland removed - dry swale -
- WSSC has accessed manholes through this wetland Photo 3 11 |

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ___	Depth (inches): <1" *
Water Table Present?	Yes ✓	No ___	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

* covering 10% of plot

22-GG-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~01 0 WET~~

Tree Stratum (Plot size: 5' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	10	✓	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Sapling Stratum (Plot size: 5' x 30')			
1. Quercus palustris	5	✓	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Shrub Stratum (Plot size: 5' x 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5' x 30')			
1. Juncus effusus	40	✓	FACW
2. Echinochloa crus-galli	5		FAC
3. Bidens frondosa	5		FACW
4. Panicum virgatum (planted)	40	✓	FAC
5. Amphicarpaea bracteata	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: 5' x 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

22-GG-WET

Sampling Point: ~~O F C WE~~

SOIL

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR5/6	100					sicl	most likely from construction
3-12	10YR4/1	90	7.5YR4/6	10	C	M	sicl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? Y Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use Roadway, Forest Distance to nearest roadway or other development 14'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Roadway Swale just north of Booze Creek

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22-GG

Latitude 38.9828 Longitude -77.15719

Prepared by: KSH Date 6/28/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

I495/I270 MANAGED LANES STUDY

Waters of the U.S. Data Sheet

VERIFIED MBS 4-18-18

Project: ~~I-495 IRVM~~ Montgomery County		**Feature ID:** ~~01-M~~ 22H	**Stream Order:** 1st
Date: ~~11/24/14~~ 4-18-2018	**State:** MD	**Photos:** ~~13~~ 2570-2572	
Crew: ~~AT,MN,AM~~ MBS/SJF	**County:** Montgomery	**Last Flag Number:** ~~01-M-02A, 01-M-02B~~ 3 (continue)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: ~~1-4in~~ 1-8" of water present in concrete lined channel at time of field visit 3' PIPE			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: ~~outside of study area~~	Downstream: ~~W111M~~ 3' PIPE	Adjacent/Abutting: ~~01-K and 01-L~~ 22F&22G

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: ~~8'~~ 2-4'	☐ Silts	☐ Sands	☐ Muck	RB: forest
☑ Artificial (man-made)	Depth: ~~3'~~ 1-8"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☑ Concrete		LB: emergent vegetation/mowed lawn
☐ Other:	none	Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: October	Year: 2014
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☑ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MLS		**Feature ID:** 22HH	**Stream Order:** 1
Date: 5/2/2018	**State:** MD	**Photos:** 2689-2692	
Crew: MBS/AGA	**County:** MONTGOMERY	**Last Flag Number:** 9	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING INVESTIGATION SEVERAL DAYS AFTER RAIN – GROUNDWATER INFLUENCE			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: N/A	Downstream: 22N	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 5'	☐ Silts	☒ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 3-5"	☐ Cobbles	☒ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☒ Concrete		LB: forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: APRIL Year: 2018											
◉	No rain	○	0-0.5	○	○	○	○	○	◉	○	○	○	○	○	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	◉	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☒ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

VERIFIED 4/26/2018 MBS/AGA

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY 4/26/2018

Project/Site: I 495 IRM Montgomery County City/County: Montgomery Co. Sampling Date: ~~11/04/18~~

Applicant/Owner: SHA State: MD Sampling Point: ~~SP 8~~ WET 22I-WET

Investigator(s): ~~AT, HN, AM~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): conc ave Slope (%): 1

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97291 Long: -77.18056 Datum: NAD83

Soil Map Unit Name: Chrome and Conowingo soils, 3 to 8% slopes NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?** Yes ✓ No
Hydric Soil Present?	Yes ✓ No	
Wetland Hydrology Present?	Yes ✓ No	

Remarks:

~~Photo 15~~ PHOTO #5: 2600-2602

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? *	Yes ✓	No ___	Depth (inches): <1
Water Table Present?	Yes ✓	No ___	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

* <1" of surface water in approx. 10% of plot

US Army Corps of Engineers

Eastern Mountains and Piedmont – Version 2.0

22I-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~01-G-WET~~

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus bicolor	30	✓	FACW
2. Acer rubrum	60	✓	FAC
3. Ulmus americana	5		FACW
4.			
5.			
6.			
	95	= Total Cover	
50% of total cover: 47.5	20% of total cover: 19		

Sapling Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 30' radius)			
1. Ligustrum sinense	8	✓	FACU
2. Viburnum prunifolium	20	✓	FACU
3. Rosa multiflora	5		FACU
4.			
5.			
6.			
	33	= Total Cover	
50% of total cover: 16.5	20% of total cover: 6.6		

Herb Stratum (Plot size: 20' radius)			
1. Carex amphibola	50	✓	FACW
2. Glycera sp.	10		N/A
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	
50% of total cover: 30	20% of total cover: 12		

Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	8	✓	FACU
2. Smilax rotundifolia	5	✓	FAC
3.			
4.			
5.			
	13	= Total Cover	
50% of total cover: 6.5	20% of total cover: 2.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

22I-WET

SOIL

Sampling Point: ~~SI-6-SUE~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR4/2	40	7.5YR4/4	15	C	M	SiCl	
	10YR3/2	45						
5-12	2.5Y5/2	90	7.5YR5/8	10	C	M	SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.47 acre Human made?_____ Is wetland part of a wildlife corridor? YES or a "habitat island"?_____

Adjacent land use ROAD Distance to nearest roadway or other development 40'

Dominant wetland systems present YES - PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22I

Latitude 38.97280 Longitude -77.180589

Prepared by: MBS Date 4-26-2018

Wetland Impact:
Type PFO Area 0.47 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Montgomery Co. Sampling Date: 9/6/18
Applicant/Owner: SHA State: MD Sampling Point: 22II-WET
Investigator(s): KJH, STE Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR or MLRA): MLRA 148 Lat: 38.986814 Long: -77.158950 Datum: NAD83
Soil Map Unit Name: Blocktown channery silt loam, 25 to 45% slopes, rocky NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
photos 0609 - 0611 Small floodplain depression wetland.
Near Cabin John Creek

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 22II-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10')			
1. Betula nigra	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Sapling Stratum (Plot size: 10')			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 10')			
1. Fraxinus pennsylvanica	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 10')			
1. Microstegium vimineum	5	N	FAC
2. Leersia virginica	70	Y	FACW
3. Persicaria maculosa	2	N	FACW
4. Fallopia japonica	5	N	UPL
5. Ampelopsis brevipedunculata	2	N	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	84 = Total Cover		
50% of total cover: 42	20% of total cover: 16.8		
Woody Vine Stratum (Plot size: 10')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 221I-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	2.5Y 3/2	70	5YR 4/6	30	C	M	SiLt loam	
15-23	10YR 4/4	60	2.5Y 4/2	20	D	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 120'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22II

Latitude 38.9868 Longitude -77.158950

Prepared by: KJH Date 9/6/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X				small floodplain depression wetland
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

*Refer to backup list of numbered considerations.

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED MBS 4-26-2018

Project: ~~I-495 IRVM – Montgomery County~~		**Feature ID:** ~~01-F~~ 22J **Stream Order:** 1st
Date: ~~11/20/14~~ 4-26-2018	**State:** MD	**Photos:** ~~14~~ 2603-2604
Crew: ~~AT,MN,AM~~ MBS/AKA	**County:** Montgomery	**Last Flag Number:** 01-F-03C, 01-F-04D

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: 2-3" of water during field visit

Hydrologic Connectivity –	Upstream: ~~W125M and 01-G~~ 22K	Downstream: ~~W130M~~ 22J +22V	Adjacent/Abutting: none

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4' 1-4'	✓ Silts	✓ Sands	☐ Muck	RB: forest, mowed lawn
☐ Artificial (man-made)	Depth: 3" 1-6"	☒ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: minor erosion	☐ Bedrock	☐ Concrete		LB: forest, paved road
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ✓ 3:1 ☐ ≤4:1			

Notes: flows to pipe

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: October	Year: 2014
● No rain	● 0-0.5	○	○	○	○	○	○	○	○	●	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Montgomery Co. Sampling Date: 9/20/18
Applicant/Owner: SHA State: MD Sampling Point: ZZJJ-WET
Investigator(s): KSH, LB Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR or MLRA): MLRA 148 Lat: 38.989758 Long: -77.158894 Datum: NAD83
Soil Map Unit Name: Baile silt loam, 0-3% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Photos 55 & 56
Small seep wetland at top of trapezoidal channel (cabin John)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 19
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 2221-WET

Tree Stratum (Plot size: 5X10)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	90	Y	FAC
2. Fraxinus pennsylvanica	5	N	FACW
3.			
4.			
5.			
6.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		

Sapling Stratum (Plot size: 5X10)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 5X10)			
1. Nyssa sylvatica	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum (Plot size: 5X10)			
1. Microstegium vimineum	60	Y	FAC
2. Fraxinus pennsylvanica	5	N	FACW
3. Onoclea sensibilis	2	N	FACW
4. Ampelopsis brevipedunculata	5	N	UPL
5. Lonicera japonica	8	N	FACU
6. Dicanthelium clandestinum	2	N	FAC
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
50% of total cover: 41	20% of total cover: 16.4		

Woody Vine Stratum (Plot size: 5X10)			
1. Parthenocissus quinquefolia	2	N	FACU
2.			
3.			
4.			
5.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 0.4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 2233-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/1	100					Silt loam	organic material present in
1-9	2.5Y 4/2	70	5YR 4/6	30	C	M, PL	silty clay	
9-22	5Y 4/2	90	5YR 5/8	10	C	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Acres Human made? N Is wetland part of a wildlife corridor? Y or a "habitat island"? N

Adjacent land use Forest Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? Floodplain

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22 JJ

Latitude 38.9897 Longitude -77.158894

Prepared by: KSH Date 9/20/18

Wetland Impact:
Type _____ Area _____

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				Small seep wetland adjacent to Cabin John Creek.
Floodflow Alteration		X			
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export	X				
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X				
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

VERIFIED 4/26/2018 MBS/AGA

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY

Project/Site: Capital Beltway **Project No:** **Applicant/Owner:** SHA **Investigators:** ~~WMM/MRS/BCR~~ MBS/AGA	**Date:** 8/17/2004 4-26-2018 **County:** Montgomery **State:** MD **Plot ID:** ~~W125~~ 22K

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** PEM (ET 3/18/15)
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION **(USFWS Region No.1)**

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Polygonum punctatum Dotted smartweed	H	OBL			
Polygonum persicaria Lady's thumb	H	FACW			

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 100%	**FAC Neutral:** **Numeric Index:**

Remarks:
PART of WETLAND PLANTED IN TURFGRASS
PHOTOS 2605-2607

HYDROLOGY

___ **Recorded Data (Describe in Remarks):** ___ Stream, Lake or Tide Gauge ___ Aerial Photographs ___ Other X **No Recorded Data** **Field Observations** **Depth of Surface Water:** N/A inches **Depth to Free Water in Pit:** >12 inches **Depth to Saturated Soil:** >12 inches	**Wetland Hydrology Indicators** **Primary Indicators** ___ Inundated ___ Saturated in Upper 12 Inches ___ Water marks X Drift Lines X Sediment Deposits ___ Drainage patterns in Wetlands **Secondary Indicators (2 or more required)** ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY 4-26-2018

Project/Site: Capital Beltway **Project No:** **Applicant/Owner:** **Investigators:** WMM/MRS/BCR MBS/AGA	**Date:** 8/17/2004 **County:** Montgomery **State:** MD **Plot ID:** W125 ZZK

SOILS

Map Unit Name (Series and Phase): Elk silt loam, 0 to 3 percent slopes, occasionally flooded
Map Symbol: 43A **Drainage Class:** Well **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Ultic Hapludulfs **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Co
0-3	B1	2.5Y2.5/1	N/A	N/A	Sandy loam/
3-6	B2	Gley 2 6/5B6	7.5YR 5/2	Many/ distinct	Silty clay/ SA
6-12	B3	Gley 1 6/56Y	7.5YR 5/6	Many/distinct	Clay/ SAB

Hydric Soil Indicators:

___ **Histosol**
___ **Histic Epipedon**
___ **Sulfidic Odor**
___ **Aquic Moisture Regime**
___ **Reducing Conditions**
X **Gleyed or Low Chroma Colors**
___ **Concretions**
___ **High Organic Content in Surface Layer in Sanc**
___ **Organic Streaking in Sandy Soils**
___ **Listed on Local Hydric Soils List**
___ **Listed on National Hydric Soils List**
___ **Other (Explain in Remarks)**

Remarks: Vegetated wetland resulting from outflow from drainage swale

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.05 acre Human made? NO Is wetland part of a wildlife corridor? YES or a "habitat island"?_____

Adjacent land use ROAD Distance to nearest roadway or other development 100'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present_____

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22K

Latitude 38.972957 Longitude -77.179617

Prepared by: MBS Date 4-26-2018

Wetland Impact:
Type PEM Area 0.05 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 22KK	Stream Order:
Date: 9/20/18	State: MD	Photos: 57-59	
Crew: KSH, LO	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Ponded at culvert flowing during site visit.

Hydrologic Connectivity –	Upstream: 22H	Downstream: Cabin John Creek (22AA)	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 8-15'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3-15"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Severe erosion	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: August Year: 2018													
● No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

VERIFIED MBS 4-26-18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: I-495 I&M - Montgomery County City/County: Montgomery Co. Sampling Date: ~~11/21/17~~ 4-26-18

Applicant/Owner: SHA State: MD Sampling Point: 01-J/G-UPL 22-UPL

Investigator(s): AT, MN, AM MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97307 Long: -77.18096 Datum: NAD83

Soil Map Unit Name: Trawlah silt loam, 2 to 8 % slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ **No** ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches):
Water Table Present?	Yes ____	No ✓	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches):

Wetland Hydrology Present? Yes ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22L-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~G1-J/G UPL~~

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	30	✓	FAC
2. Fraxinus pennsylvanica	50	✓	FACW
3. Ulmus americana	20		FACW
4. Acer rubrum	20		FAC
5.			
6.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		

Sapling Stratum (Plot size: 30' radius)			
1. Acer negundo	12	✓	FAC
2.			
3.			
4.			
5.			
6.			
	12 = Total Cover		
50% of total cover: 6	20% of total cover: 2.4		

Shrub Stratum (Plot size: 30' radius)			
1. Ligustrum sinense	20	✓	FACU
2. Rosa multiflora	10	✓	FACU
3. Rubus phoenicolasius	5		FACU
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Herb Stratum (Plot size:)			
1. Ilaria pectinata	6	✓	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	6 = Total Cover		
50% of total cover: 3	20% of total cover: 1.2		

Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	60	✓	FACU
2. Hedera helix	10		FACU
3. Celastrus orbiculatus	5		FACU
4. Euonymus fortunei	5		UPL
5.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 70	x 2 = 140
FAC species 62	x 3 = 186
FACU species 116	x 4 = 464
UPL species 5	x 5 = 25
Column Totals: 253 (A)	815 (B)

Prevalence Index = B/A = 3.22

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

22L - UPL

SOIL

Sampling Point: ~~01 T/C UPL~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/3	100					Si l	
4-12	10YR5/4	100					Si l	w/coarse fragments

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ No ✓

Remarks:

VERIFIED MBS/AGA 4-26-2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY 4-26-2018

Project/Site: ~~I-495 I&M Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~11/21/17~~

Applicant/Owner: SHA State: MD Sampling Point: ~~WET~~ 22L

Investigator(s): ~~AT, MW, AM~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97321 Long: -77.18064 Datum: NAD83

Soil Map Unit Name: Tranlah silt loam, 3 to 8 % slopes NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil ____, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

- Appears to have been previously excavated

~~Photo 10 looking NE~~ PHOTOS 2608-2609

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓ No ____	Depth (inches): 1-6"
Water Table Present?	Yes ____ No ✓	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches):

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22L

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~A1 J WET~~

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: * regular)			
1. Persicaria punctata	3	✓	OBL
2. Canna annabinacea	6	✓	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	9 = Total Cover		

50% of total cover: 4.5 20% of total cover: 1.8

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)
* Plot is limited to wetland boundary. Wetland is very sparsely vegetated.

22L

SOIL

Sampling Point: DP T WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/1	85	7.5YR4/4	15	C	M	sicl	
4-8	10YR4/2	80	7.5YR4/6	20	C	M	sicl	
8-12	2.5Y5/1	100					SC	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.02 acre Human made?_____ Is wetland part of a wildlife corridor? YES or a "habitat island"?_____

Adjacent land use ROAD Distance to nearest roadway or other development 100'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22L

Latitude 30.973451 Longitude -77.180525

Prepared by: MBS Date 4-26-2018

Wetland Impact:
Type PEM Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes City/County: Montgomery Sampling Date: 10/3/18
Applicant/Owner: State Highway Administration State: MD Sampling Point: 22LL-wet
Investigator(s): MS Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 0-20%
Subregion (LRR or MLRA): MLRA 148 Lat: 38.970302 Long: -77.178380 Datum: NAD83
Soil Map Unit Name: Rock outcrop-Blocktown complex NWI classification: PFO1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
☆ Are Vegetation [ ], Soil [X], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (✓)	No ( )	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes ( )	No ( )	
Wetland Hydrology Present?	Yes (✓)	No ( )	

Remarks: wetland is a small low pocket on high floodplain/terrace near Bedrock ⇒ hydrology likely perched on bedrock

☆ no soil pit sampled due to limited/non-invasive access to property

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [ ] Saturation (A3)
- [X] Water Marks (B1)
- [X] Sediment Deposits (B2)
- [X] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [✓] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [✓] No [ ] Depth (inches): 0-2"
☆ Water Table Present? Yes [·] No [ ] Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes [✓] No [ ] Depth (inches): 0"

Wetland Hydrology Present? Yes (✓) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
photos 0414 - 0419

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 22LC wet

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 15' radius)			
1. Box elder (Acer negundo)	40	Y	FAC
2. American Elm (Ulmus americana)	20	Y	FACW
3.			
4.			
5.			
6.			
	060 = Total Cover		
50% of total cover: 0.0 (30)	20% of total cover: 0.0 (12)		
Sapling Stratum (Plot size: 15' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Shrub Stratum (Plot size: 15' radius)			
1. Lindera benzoin	10	Y	FAC
2. Acer negundo	10	Y	FAC
3. Lonicera sp.	5	N	NI
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 0.0 (12.5)	20% of total cover: 0.0 (5)		
Herb Stratum (Plot size: 10' radius)			
1. Persicaria punctata	20	Y	OBL
2. Creeping Jenny (Lysimachia nummularia)	20	Y	FACW
3. Hibiscus moscheutos	10	N	OBL
4. Persicaria hydropiperoides	5	N	FACW
5. maculosa			
6.			
7.			
8.			
9.			
10.			
11.			
	055 = Total Cover		
50% of total cover: 0.0 (27.5)	20% of total cover: 0.0 (11)		
Woody Vine Stratum (Plot size: 10' radius)			
1.			
2.			
3. None			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 22LL-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☐

Remarks:

No soil pit collected on 10/31/18

Was unable to collect soil profile because the property did not have invasive access at the time of the site visit

Digging soil pits is considered invasive work.

Wetland Function-Value Evaluation Form

Total area of wetland 0.05Ac Human made?_____ Is wetland part of a wildlife corridor? Yes or a "habitat island"?_____

Adjacent land use Forest + Bedrock Distance to nearest roadway or other development 140 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22LL

Latitude 38.970275 Longitude -77.178429

Prepared by: MRJ Date 10/31/18

Wetland Impact:
Type PFO Area 0.05Ac

Evaluation based on:
Office_____ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			wetland is small, perched pool of water on bedrock island
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				minor function as open water pool on bedrock island during portions of the year
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet VERIFIED MBS/ABA 4-26-18

Project: ~~I-495 IRVM - Montgomery County~~		**Feature ID:** ~~01-D~~ 22M	**Stream Order:** 3rd
Date: ~~11/18/14~~ 4-26-2018	**State:** MD	**Photos:** ~~47~~ 2610-2611	
Crew: ~~A. Tatone, M. Niehaus~~ MBS/ABA	**County:** Montgomery	**Last Flag Number:** ~~01-D-02A, 01-D-03B~~ LIDAR BOUNDARY	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round) RSUBH		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING RAPIDLY AT HIGH VOLUME & 30' WIDE			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: outside of study area	Downstream: Potomac River	Adjacent/Abutting: 01-C

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 30'	✓ Silts	✓ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 8" – 1'	✓ Cobbles	✓ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: minor erosion	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:		Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Rock Run, flows through culvert					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: October	Year: 2014
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		Feature ID: 22MM	Stream Order:
Date: 10/31/18	State: MD	Photos: 0420 - 0421 0424 - 0426	
Crew: MPS	County: Montgomery	Last Flag Number: not flagged - Potomac River	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	☒ TNW – Perennial (Flowing year round) NORTH	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland
	○ RPW – Perennial (Flowing year round)		○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Describe rational for hydrologic class: feature is Potomac River and large side channel			

Hydrologic Connectivity –	Upstream: NA	Downstream: NA	Adjacent/Abutting: 22NN, 2200, 22LL

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: > 400 ft	☑ Silts	☑ Sands	☑ Muck	RB: forest
☐ Artificial (man-made)	Depth: > 10 ft	☑ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☑ Bedrock	☐ Concrete		LB: forest
☐ Other:	stable to heavily eroding	Side slope: ☑ ≥1:1 ☒ 2:1 ☒ 3:1 ☒ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2018												
☒	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	●	○	○
○	Light rain	☒	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.13	5	6
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☒ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☒ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED MBS/AGA 4-26-2018

Project: ~~I-495 IRVM - Montgomery County~~		**Feature ID:** ~~01-C~~ 22N	**Stream Order:** 1st
Date: ~~11/18/14~~ 4-26-2018	**State:** MD	**Photos:** ~~18~~ 2612-2613, 2689-2690 (5-2-2018 of intermittent top part)	
Crew: ~~A. Tatone, M. Niehaus~~ MBS/AGA	**County:** Montgomery	**Last Flag Number:** 01-C-20A, 01-C-22B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: ~~also ephemeral~~ at top with concrete intermittent portion Now identified as 22HH			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~W122M~~, 22HH	Downstream: ~~01-D~~ 22M	Adjacent/Abutting: ~~01-E~~ 220

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 5'		✓ Silts	☐ Sands	☐ Muck		RB: forest
☐ Artificial (man-made)	Depth: ~~3'~~ 3"		✓ Cobbles	✓ Gravel	☐ Other:		
✓ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	✓ Concrete			LB: forest
☐ Other:	minor erosion		Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1				
Notes: pipes, rip-rap and concrete present							

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php								Month: October		Year: 2014		
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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					
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lane Study		Feature ID: 22 NN	Stream Order:
Date: 10/31/18	State: MD	Photos: 0427-0435	
Crew: MRS	County: Montgomery	Last Flag Number: 22NN-8	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year) R4SB	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: standing water but not flowing. feature drains wetland 2200 into Potomac River			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: wetland 2200	Downstream: Potomac River 22MM	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 8-10 ft	☐ Silts	☑ Sands	☑ Muck	RB: forest
☐ Artificial (man-made)	Depth: 0-0.5 ft	☐ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: area under highway bridge
☐ Other:	moderate erosion	Side slope: ☑ ≥1:1	☑ 2:1	☐ 3:1 ☐ ≤4:1	
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php									Month: October		Year: 2018		
⊗	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	○	●	○	○
○	Light rain	⊗	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.13	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☑ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

VERIFIED MBS/AGA 5-2-18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: I-495 ~~I-270~~ Managed Lanes Study City/County: Montgomery Co. Sampling Date: 11/18/14 220

Applicant/Owner: SHA State: MD Sampling Point: ~~01-E-UPL~~ UPL

Investigator(s): AT, MN MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): flood plain Local relief (concave, convex, none): _____ Slope (%): 0

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97480 Long: -77.17996 Datum: NAD 83

Soil Map Unit Name: Trawlah silt loam, 3 to 8 % slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Area is becoming increasingly wet

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches):
Water Table Present?	Yes ✓	No _____	Depth (inches): 11'
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches):

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

220-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: OI-F-UPL

Tree Stratum (Plot size: 38' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus strobus	70	✓	FACU
2. Acer rubrum	20	✓	FAC
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot size: 30' radius)			
1. Liquidambar styraciflua	10	✓	FAC
2. Acer negundo	5	✓	FAC
3. Quercus rubra	5	✓	FACU
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Shrub Stratum (Plot size: 30' radius)			
1. Rosa multiflora	5	✓	FACU
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 30' radius)			
1. Microstegium vimineum	40	✓	FAC
2. Duchesnea indica	5		FACU
3. Cinnamomum camphora	5		FACU
4. Toxicodendron radicans	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	40	✓	FACU
2. Vitis sp.	15		N/A
3. Toxicodendron radicans	8		FAC
4.			
5.			
	63 = Total Cover		
50% of total cover: 31.5	20% of total cover: 12.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	88	x 3 =	264
FACU species	125	x 4 =	500
UPL species	0	x 5 =	0
Column Totals:	218 (A)		774 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

220-UPL

SOIL

Sampling Point: ~~01-E-UPL~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR4/2	95	7.5YR4/6	5	C	PL	sicl	
1-12	2.5Y5/3	95	10YR4/6	5	C	M	fscl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ No ✓

Remarks:

VERIFIED MBS/AGA 5-2-2018 (UPDATED VEG) 4-26-2018

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IPVM - Montgomery County~~ City/County: Montgomery Co. Sampling Date: ~~4/18/18~~

Applicant/Owner: SHA State: MD Sampling Point: ~~01-E-WET~~ 220

Investigator(s): ~~AT, MN~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): /

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97474 Long: -77.18019 Datum: NAD 83

Soil Map Unit Name: Trawlah silt loam, 3 to 8 % slopes NWI classification: PFOIE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	Is the Sampled Area within a Wetland?	Yes ✓ No
Hydric Soil Present?	Yes ✓ No		
Wetland Hydrology Present?	Yes ✓ No		

Remarks:

PHOTOS 2686-2689

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? *	Yes ✓	No ___	Depth (inches): <1"
Water Table Present?	Yes ✓	No ___	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

* <1" of standing water in approximately 20% of plot

220

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~A1 E-WET~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1. Platanus occidentalis	20	✓	FACW
2. Acer negundo	30	✓	FAC
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling Stratum (Plot size: 30' radius)			
1. Acer negundo	5	✓	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: 30' radius)			
1. ~~Lindera benzoin~~	~~15~~	~~✓~~	~~FAC~~
2.			
3.			
4.			
5.			
6.			
	~~15~~ = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 5' radius)			
1. Cinna arundinacea	10	✓	FACW
2. Symphyotrichum pilosum	5		FAC
3. Persicaria maculosa	5		FACW
4. Dichanthelium clandestinum	~~30~~ 30	✓	FAC
5. Equisetum fluviatile	20	✓	OBL
6. Lonicera japonica	5		FACU
7.			
8.			
9.			
10.			
11.			
	50 100 ~~55~~ = Total Cover		20
50% of total cover: ~~27.5~~	20% of total cover: ~~11~~		
Woody Vine Stratum (Plot size: 30' radius)			
1. ~~Smilax rotundifolia~~	~~5~~		~~FAC~~
2. ~~Toxicodendron radicans~~	~~5~~	~~✓~~	~~FAC~~
3. ~~Lonicera japonica~~	~~7~~	~~✓~~	~~FACU~~
4.			
5.			
	~~27~~ = Total Cover		
50% of total cover: ~~13.5~~	20% of total cover: ~~5.4~~		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

220

SOIL

Sampling Point: ~~01-E WET~~

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/1	95	7.5YR3/4	5	C	PL	sil	w/ organics
4-12	10YR4/1	80	7.5YR4/6	20	C	PL	fscl	U

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No

Remarks:

Wetland Function-Value Evaluation Form

Final

Total area of wetland 0.44 ac± Human made? No Is wetland part of a wildlife corridor?_____ or a "habitat island"?_____

Adjacent land use ROAD/RESIDENTIAL Distance to nearest roadway or other development 100'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 220

Latitude 38.974584 Longitude -77.180507

Prepared by: MBS Date 5-2-2018

Wetland Impact:
Type PFO Area 0.44 ac±

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 495/270 Managed Lanes City/County: Montgomery Sampling Date: 10/31/18
Applicant/Owner: SHA State: MD Sampling Point: 2200 - wet
Investigator(s): MRS Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-5%
Subregion (LRR or MLRA): MLRA 148 Lat: 38.971083 Long: -77.180070 Datum: NAD83
Soil Map Unit Name: Rock outcrop-Blocktown complex NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
★ Are Vegetation [ ], Soil [X], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [ ]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
Photos 0436-0441
★ soils not sampled because did not have invasive access to property

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [X] Iron Deposits (B5)
- [X] Inundation Visible on Aerial Imagery (B7)
- [X] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 0-2"
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
natural drainage way in middle of wetland full of water and iron oxide flocculate

feature is primarily herbaceous vegetation with from 0-50% tree canopy cover → higher along edges

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 2200

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1. Sycamore Platanus occidentalis	20	Y	FACW
2. Box elder Acer negundo	20	Y	FAC
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling Stratum (Plot size: 30' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Shrub Stratum (Plot size: 30' radius)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 20' radius)			
1. Reed canary grass Phalaris arundinacea	80	Y	FACW
2. Mile a minute Persicaria perfoliata	10	N	FAC
3. Lizards tail Saururus cernuus	20	N	OBL
4. Persicaria pensylvanica	10	N	FACW
5. Bochmeria cylindrica	10	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2. None			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 2200-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◯ No ◯

Remarks:

Soil not sampled on 10/31/18 because project did not have invasive access to the property

→ Note area is very wet with iron flocculate deposits in surface water

Wetland Function-Value Evaluation Form

Total area of wetland >0.5Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"?

Adjacent land use forest Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PEM/PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mills

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22 00

Latitude 38.971063 Longitude -77.180072

Prepared by: MRS Date 10/31/18

Wetland Impact:
Type PFO Area >0.5 Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓	13		
Floodflow Alteration		✓	5,6,9,18		
Fish and Shellfish Habitat		✓	1		
Sediment/Toxicant Retention		✓	4,5,8,		
Nutrient Removal	✓		1,3,5,7,8,9,10,11	✓	Dense vegetation but watershed is primarily small and forested → low sediment load,
Production Export	✓		1,2,4,5,7,8,12,	✓	
Sediment/Shoreline Stabilization		✓	2,3,		
Wildlife Habitat	✓		3,4,8,13,15,18,21,	✓	
Recreation		✓	1,5,12		
Educational/Scientific Value		✓	5,6,		
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓	4,5,8,		
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22P	**Stream Order:** 1
Date: 4-26-2018	**State:** MD	**Photos:** 2614-2615	
Crew: MBS/AGA	**County:** MONTGOMERY	**Last Flag Number:** 2 (centerline)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING SLIGHTLY AFTER ~0.25" RAIN PREVIOUS DAY, ~3" STANDING WATER IN MUCH OF CHANNEL			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 3' PIPE	Downstream: 22N	Adjacent/Abutting: 22O

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 3"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:	MODERATE EROSION	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: flocculated iron within channel					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: MARCH Year: 2018												
● No rain	● 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1.45	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified 10/31/18 MRS

feature 22 PP

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: ~~I-495 I270 Managed Lane Study~~ 495/270 Managed Lane Study City/County: ~~Montgomery County~~ Montgomery County Sampling Date: ~~10/08/15~~ 10/31/18

Applicant/Owner: SHA State: MD Sampling Point: ~~01-P-WET~~

Investigator(s): ~~MM, EJ, BF~~ MRS Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): MLRA 148 Lat: 38.971908 Long: -77.179497 Datum: NAD 83

Soil Map Unit Name: Elksitt loam, 0-3% slopes NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

~~Photo #1 facing South~~

photos 0445-0446 from 10/31/18

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ~~✓~~	Depth (inches): 0-0.5"
Saturation Present? (includes capillary fringe)	Yes ✓	No ~~✓~~	Depth (inches): 2"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

~~Small swale depression located at the base of the sloped roadway embankment~~

~~culvert likely contributes to hydrology, dry @ time of site visit~~.

feature wetter in 2018 than when visited/delineated in 2015

22 PP

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~OT P WET~~

Tree Stratum (Plot size: irregular*)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. None			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: irregular*)			
1. Ulmus americana	5	✓	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: irregular*)			
1. Lonicera maackii	5	✓	UPL
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: irregular*)			
1. Persicaria hydropiperoides	60	✓	OBL
2. Fraxinus pennsylvanica	5		FACW
3. Lonicera japonica	10		FACU
4. Lonicera maackii	8		UPL
5. Symphyotrichum pilosum	3		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	86 = Total Cover		
50% of total cover: 43	20% of total cover: 17.2		
Woody Vine Stratum (Plot size: irregular*)			
1.			
2. None			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

*Plot follows limits of swale *Approximately 75% aerial coverage from surrounding tree canopy

only one sapling w/in plot

Verified 10/31/18 MMJ

22 PP

SOIL

Sampling Point: ~~SP-WFT~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 3/2	95	7.5YR 4/4	5	C	M	Silo	
6-10	10YR 4/2	45	7.5YR 4/4	10	C	M	Silo	w/ coarse fragments
	10YR 4/3	45						
10-12	2.5Y 5/4	50					Silo	fill material
	7.5YR 5/6	50					Silo	fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 AC Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? _____

Adjacent land use Forest, roadway Distance to nearest roadway or other development 50 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22PP

Latitude 35.9919 Longitude -77.179505

Prepared by: MRS Date 10/31/18

Wetland Impact:
Type PFO Area 0.01 AC

Evaluation based on:
Office _____ Field ✓

Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				may receive GW seepage from highway embankment
Floodflow Alteration		✓			very limited drainage area
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention		✓			
Nutrient Removal		✓			
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat		✓			
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED MBS/AGA 4-26-18

Project: ~~I-495 IRVM – Montgomery County~~		**Feature ID:** ~~01-I~~ 22Q	**Stream Order:** 1st
Date: ~~11/20/14~~ 4-26-2018	**State:** MD	**Photos:** ~~18~~ 2616–2620	
Crew: ~~AT,MN,AM~~ MBS/AGA	**County:** Montgomery	**Last Flag Number:** ~~01-I-09A, 01-I-09B~~ 20A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: greater than 1 ft of water in channel			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: ~~01-H~~ 22R	Downstream: outside of study area	Adjacent/Abutting: ~~01-H~~ 22R

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 4'	✓ Silts	✓ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 2'	☐ Cobbles	☐ Gravel	☐ Other:	
✓ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:		Side slope: ✓ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: flows to and from concrete pipes					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month:	Year:
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○	october	2014
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: 495/270 Managed Lanes		**Feature ID:** 22QQ	**Stream Order:**
Date: 10/31/18	**State:** MD	**Photos:** 0447 - 0451	
Crew: MRS	**County:** Montgomery	**Last Flag Number:** 22QQ-5	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
TNW (Subject to ebb and flow)	TNW – Perennial (Flowing year round)	[X] RPW – Seasonal (must flow at least 3 months a year)	Non-RPW draining uplands
	RPW – Perennial (Flowing year round)		Non-RPW erosional feature
			Non-RPW with abutting wetland
			Non-RPW with adjacent wetland
Describe rational for hydrologic class: observed surface water, barely/not flowing, but full of iron oxide flocculate = GW discharge?			Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: None	Downstream: 22MM = Potomac River = side channel	Adjacent/Abutting: None

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
[X]	Natural Channel Shape	Width: 2'-6'	[ ]	Silts	[X]	Sands	[X]	Muck	RB: forest
[ ]	Artificial (man-made)	Depth: 0.0 - 0.1'	[ ]	Cobbles	[ ]	Gravel	[ ]	Other:	
[ ]	Manipulated (man-altered)	Bank Erosion/stability:	[ ]	Bedrock	[ ]	Concrete			LB: forest
[ ]	Other:	moderate erosion	Side slope: [X] ≥1:1 [X] 2:1 [ ] 3:1 [ ] ≤4:1						
Notes: feature is naturally eroded channel from SW outfall									

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php Month: October Year: 2018												
[X]	No rain	[ ]	0-0.5										[X]		
[ ]	Light rain	[X]	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4.13	5	6
[ ]	Heavy Rain	[ ]	>1	Severe Drought			Moderate Drought		Normal			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					
[X]	Yes	[X]	Clear, natural line impressed on the bank	[ ]	Sediment deposition	[ ]	Sediment sorting
[ ]	No	[ ]	Changes in the character of soil	[X]	Water staining	[X]	Scour
		[ ]	Shelving	[ ]	Presence of flood litter/debris	[X]	Observed/predicted flow events
		[ ]	Vegetation matted down, bent, or absent	[ ]	Destruction of terrestrial veg.	[ ]	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:
Notes:					

VERIFIED MBS
4-26-18

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I 495 IRM Montgomery County~~ City/County: Montgomery Co. Sampling Date: 4/20/18 4-26-18

Applicant/Owner: SHA State: MD Sampling Point: ~~SP~~ 22R-UPL

Investigator(s): ~~AF, MN, AM~~ MBS/ABA Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): convex Slope (%): 3-4

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97392 Long: -77.17586 Datum: NAD 83

Soil Map Unit Name: Watchung silty clay, 0 to 3% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches):
Water Table Present?	Yes ____	No ✓	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches):

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22R-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~61-FT-UPL~~

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1. Liriodendron tulipifera	70	✓	FACU
2. Acer rubrum	5		FAC
3. Quercus falcata	10		FACU
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Sapling Stratum (Plot size: 30' radius)			
1. Carpinus caroliniana	5	✓	FAC
2. Asimina triloba	5	✓	FAC
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 30' radius)			
1. Ilex opaca	10	✓	FACU
2. Rubus phoenicolasius	15	✓	FACU
3. Rosa multiflora	15	✓	FACU
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 30' radius)			
1. Duchesnea indica	10	✓	FACU
2. Polystichum acrostichoides	8	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	18 = Total Cover		
50% of total cover: 9	20% of total cover: 3.6		
Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	15	✓	FACU
2. Smilax rotundifolia	5	✓	FAC
3. Hedera helix	5	✓	FACU
4.			
5.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 27 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	158	x 4 =	632
UPL species	0	x 5 =	0
Column Totals:	178 (A)		692 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

22R-UPL

SOIL

Sampling Point: ~~D-H-UPL~~

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/3	98	10YR4/6	2	C	M	sicl	
6-12	10YR4/4	60	7.5YR 4/4	5	C	M	fscl	
	10YR4/6	45						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ___ **No** ✓

Remarks:

VERIFIED MBS/AGA 4-26-18
EXTENDED SHAPE

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~I-495 IRVM Montgomery County~~ City/County: Montgomery Co. Sampling Date: 4-26-2018

Applicant/Owner: SHA State: MD Sampling Point: ~~SP#~~ ~~WET~~ 22R

Investigator(s): ~~AT, MN, AM~~ MBS/AGA Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR or MLRA): MLRA 148 Lat: 38.97356 Long: -77.17452 Datum NAD83

Soil Map Unit Name: Watchung silty clay loam, 0 to 3% slopes NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No	**Is the Sampled Area within a Wetland?** Yes ✓ No
Hydric Soil Present?	Yes ✓ No	
Wetland Hydrology Present?	Yes ✓ No	

Remarks:

Plots 2621-2624

- Separated feature into PEM/PFO (PEM is 22Y).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? *	Yes ✓	No ___	Depth (inches): 2-4"
Water Table Present?	Yes ___	No ___	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches):

Wetland Hydrology Present? Yes ✓ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

* 2-4 in of water present in approx 5% of plot

22R

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: ~~OLH WET~~

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	✓	FAC
2. Platanus occidentalis	40	✓	FACW
3.			
4.			
5.			
6.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling Stratum (Plot size: 30' radius)			
1. Asimina triloba	5	✓	FAC
2. Nyssa sylvatica	8	✓	FAC
3.			
4.			
5.			
6.			
	13 = Total Cover		
50% of total cover: 6.5	20% of total cover: 2.6		
Shrub Stratum (Plot size: 30' radius)			
1. Asimina triloba	15	✓	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 30' radius)			
1. Dichanthelium clandestinum	12		FAC
2. Microstegium vimineum	45	✓	FAC
3. Cuscuta gronovii	20	✓	FACW
4. Symphyotrichum pilosum	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
50% of total cover: 41	20% of total cover: 16.4		
Woody Vine Stratum (Plot size: 30' radius)			
1. Lonicera japonica	15	✓	FACU
2. Smilax rotundifolia	3		FAC
3.			
4.			
5.			
	18 = Total Cover		
50% of total cover: 9	20% of total cover: 3.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 22R STH-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y3/2	60	7.5YR5/8	5	C	PL	sicl	many rootlets
	10YR3/2	35						
2-8	2.5Y3/1	85	7.5YR4/6	15	C	PL, M	sicl	
8-12	5Y4/2	80	7.5YR4/4	20	C	M	sicl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
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- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
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- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
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- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

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- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.3ac Human made?_____ Is wetland part of a wildlife corridor? Y or a "habitat island"?_____

Adjacent land use ROADWAY Distance to nearest roadway or other development 50 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MIDDLE

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22R

Latitude 38.973539 Longitude -77.174689

Prepared by: MBS Date 4-26-2018

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		Feature ID: 22RR	Stream Order:
Date: 9/6/18	State: MD	Photos: 0607 - 0608	
Crew: KJH, SDF	County: Mo.	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing during site visit. Fish

Hydrologic Connectivity –	Upstream: outside study Area	Downstream: Cabin John Creek	Adjacent/Abutting: None

Feature Description: *(check all that apply)* 22AA

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 6-15'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2-10"	☑ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Severe erosion	Side slope: ☑ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php — Month: August Year: 2018													
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☑ Vegetation matted down, bent, or absent	☑ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 225	**Stream Order:**
Date: 5-2-2018	**State:** MD	**Photos:** 2681-2685	
Crew: MBS/AGA	**County:** MONTGOMERY	**Last Flag Number:** 9 (continue)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING DURING FIELD INVESTIGATION, SEVERAL DAYS AFTER RAIN			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 1' PIPE	Downstream: 22M	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1-7'	☒ Silts	☒ Sands	☐ Muck	RB: FOREST
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☒ Gravel	☒ Other: FLAT STONE SLABS	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: FOREST
☐ Other:	STABLE	Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: APRIL Year: 2018												
◉ No rain	○ 0-0.5	○	○	○	○	○	◉	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Stream Assessment Form (Form 1)

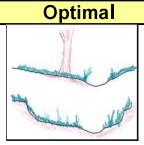
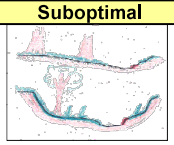
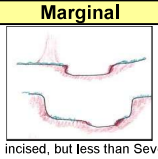
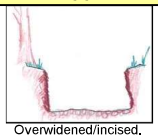
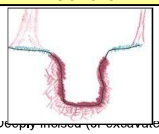
Unified Stream Methodology for use in Virginia

For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	R3	02070008	8/20/2018	~~CC/CD~~22SS		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

Conditional Category	Optimal	Suboptimal	Marginal	Poor	Severe	
Channel Condition	 Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	 Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	 Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may bevertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which contribute to stability.	 Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	 Deeply incised (or excavated), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	1.6
NOTES>>	Banks are significantly incised throught with evidence of erosion.					

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Conditional Category	Optimal	Suboptimal		Marginal		Poor	
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5

NOTES>> The buffer is has significant areas of disturbance on the left bank including houses and lawns. The right bank has more natural features but still has lawns which intersect.

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	80%	20%					100%	
	Score >	1.5	0.6						
								CI= (Sum % RA * Scores*0.01)/2	
Left Bank	% Riparian Area>	90%	10%					100%	Rt Bank CI > 1.32
	Score >	1.5	0.6						Lt Bank CI > 1.41

CI: 1.37

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

Conditional Category	Optimal	Suboptimal	Marginal	Poor	
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	CI
Score	1.5	1.2	0.9	0.5	1.50

NOTES>> Habitat elements are present in the majority of the stream.

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R3	0207008	8/20/18	CC/CD		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> alteration/straightening has occurred on a small section of this stream

	Conditional Category						
	Negligible	Minor		Moderate		Severe	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.	
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	1.30

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	1.15
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	0
CR = RCI X LF X IF	

INSERT PHOTOS:







DESCRIBE PROPOSED IMPACT:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22T	**Stream Order:** 1
Date: 5-2-2018	**State:** MD	**Photos:** 2693-2696	
Crew: MBS/AGA	**County:** MONTGOMERY	**Last Flag Number:** N/A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: FLOWING RAPIDLY ~4 DAYS AFTER RAINFALL			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 22U	Downstream: 22HH	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3-6'	☐ Silts	☒ Sands	☐ Muck	RB: FORESTED
☐ Artificial (man-made)	Depth: 3"	☒ Cobbles	☐ Gravel	☒ Other: RIPRAP	
☒ Manipulated (man-altered)	Bank Erosion/stability: STABLE	☐ Bedrock	☒ Concrete		LB: FORESTED
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: APRIL Year: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: I-495 Northern Express Lanes City/County: Fairfax County Sampling Date: 8/16/2018

Applicant/Owner: Virginia Department of Transportation State: VA Sampling Point: ~~DP-DC~~ 22TT

Investigator(s): Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR S Lat: 38.9630 Long: -77.1741 Datum: NAD83

Soil Map Unit Name: Codorus and Hatboro soils, 0 to 2 percent slopes, occasionally flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Hydric Soil Present?	Yes (●)	No ( )	
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [✓] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( )	No (●)	Depth (inches):
Water Table Present?	Yes ( )	No (●)	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes (●)	No ( )	Depth (inches): 4"

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-DC

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	✓	FAC
2. Fraxinus pennsylvanica	10		FACW
3. Platanus occidentalis	5		FACW
4. Liriodendron tulipifera	5		FACU
5.			
6.			
7.			
	60	= Total Cover	

Sapling Stratum (Plot size: 30)			
1. Fraxinus pennsylvanica	25	✓	FACW
2. Acer rubrum	5		FAC
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	

Shrub Stratum (Plot size: 15)			
1. Lindera benzoin	15	✓	FAC
2. Fraxinus pennsylvanica	5		FACW
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Microstegium vimineum	75	✓	FAC
2. Osmundastrum cinnamomeum	5		FACW
3. Ligustrum japonicum	5		UPL
4. Lonicera japonica	5		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	135	x 3 =	405
FACU species	10	x 4 =	40
UPL species	10	x 5 =	50
Column Totals:	205 (A)		595 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-DC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/2	80	10YR4/6	20	C	M	SL	silt loam
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				
		0%		0%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

VERIFIED MBS/AGA 5-2-2018

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY

Project/Site: Capital Beltway	**Date:** ~~8/17/2004~~ 5-2-2018
Project No:	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: WMM/MRS/BCR MBS/AGA	**Plot ID:** ~~W-121 UPL~~ 224 UPL

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** Upland (ET 3/18/15)
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area?	Yes	No	**Field Location:**
(If needed, explain on the reverse side)			

VEGETATION **(USFWS Region No.1)**

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Juniperus virginiana	S	FACU			
Eastern Red cedar					
Liriodendron tulipifera	OS	FACU			
Tulip tree					
Rosa multiflora	S	FACU			
Multiflora rose					
Toxicodendron radicans	WV	FAC			
Poison Ivy					
Lonicera japonica	WV	FAC-			
Japanese honeysuckle					
Parthenocissus quinquefolia	WV	FACU			
Virginia creeper					
Cercis Canadensis	S	FACU-			
Eastern redbud					

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 15%	**FAC Neutral:** **Numeric Index:**

Remarks:

HYDROLOGY

___ **Recorded Data (Describe in Remarks):**	**Wetland Hydrology Indicators**
___ **Stream, Lake or Tide Gauge**	**Primary Indicators**
___ **Aerial Photographs**	___ **Inundated**
___ **Other**	___ **Saturated in Upper 12 Inches**
X **No Recorded Data**	___ **Water marks**
	___ **Drift Lines**
Field Observations	___ **Sediment Deposits**
	___ **Drainage patterns in Wetlands**
Depth of Surface Water: N/A inches	**Secondary Indicators (2 or more required)**
	___ **Oxidized Root Channels in Upper 12 Inches**
Depth to Free Water in Pit: >10 inches	___ **Water-Stained Leaves**
	___ **Local Soil Survey Data**
Depth to Saturated Soil: >10 inches	___ **FAC-Neutral Test**
	___ **Other (Explain in Remarks)**

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY 5-2-2018

Project/Site: Capital Beltway **Project No:** **Applicant/Owner:** **Investigators:** WMM/MRS/BCR	**Date:** 8/17/2004 **County:** Montgomery **State:** MD (ET 3/18/15) **Plot ID:** ~~WF21-UPL~~ 724-UPL

SOILS

Map Unit Name (Series and Phase): Travilah silt loam, 3 to 8 percent slopes
Map Symbol: 37B **Drainage Class:** Somewhat poorly **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Aquic Hapludulfs **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	B1	10YR4/4	N/A	N/A	loam
2-10	B2	10YR5/6	N/A	N/A	Loamy sand

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:

VERIFIED MBS/AGA 5-2-2018

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY

Project/Site: ~~Capital Beltway~~ **Project No:** 103-087 **Applicant/Owner:** SHA **Investigators:** ~~WMM/MRS/BCR~~ MBS/AGA	**Date:** ~~8/17/2004~~ 5-2-2018 **County:** Montgomery **State:** MD **Plot ID:** ~~W-12T~~ 22U

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** PFO (ET 3/18/15)
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area?	Yes	No	**Field Location:**
(If needed, explain on the reverse side)			

VEGETATION (USFWS Region No.1)

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Acer rubrum	OS/S	FAC			
Red maple					
Salix nigra	OS	FACW+			
Black willow					
Ulmus rubra	OS	FAC			
Slippery elm					
Acer negundo	OS	FAC+			
Boxelder					

Percent Dominant Species that are OBL, FACW, or FAC: (excluding FAC-) 100%	**FAC Neutral:** **Numeric Index:**

Remarks:
Photos 2697-2699

HYDROLOGY

___ Recorded Data (Describe in Remarks): ___ Stream, Lake or Tide Gauge ___ Aerial Photographs ___ Other X No Recorded Data **Field Observations** Depth of Surface Water: 0-6 inches Depth to Free Water in Pit: 0 inches Depth to Saturated Soil: 0 inches	**Wetland Hydrology Indicators** Primary Indicators X Inundated X Saturated in Upper 12 Inches ___ Water marks ___ Drift Lines ___ Sediment Deposits ___ Drainage patterns in Wetlands Secondary Indicators (2 or more required) ___ Oxidized Root Channels in Upper 12 Inches X Water-Stained Leaves ___ Local Soil Survey Data X FAC-Neutral Test ___ Other (Explain in Remarks)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

I-495/I-270 MANAGED LANES STUDY 5-2-2018

Project/Site: ~~Capital Beltway~~ **Project No:** 103-087 **Applicant/Owner:** **Investigators:** ~~WMM/MRS/BCR~~ MBS/ALA	**Date:** ~~8/17/2004~~ **County:** Montgomery **State:** MD **Plot ID:** ~~W-121~~ 22U

SOILS

Map Unit Name (Series and Phase): Travilah silt loam, 3 to 8 percent slopes
Map Symbol: 37B **Drainage Class:** Somewhat poorly **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Aquic hapludulfs **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12		5Y3/1	2.5Y5/3	Faint	Silty clay loam

Hydric Soil Indicators:

___ **Histosol**
___ **Histic Epipedon**
___ **Sulfidic Odor**
___ **Aquic Moisture Regime**
_X_ **Reducing Conditions**
_X_ Gleyed or Low Chroma Colors
___ **Concretions**
___ **High Organic Content in Surface Layer in Sandy Soils**
___ **Organic Streaking in Sandy Soils**
___ **Listed on Local Hydric Soils List**
___ **Listed on National Hydric Soils List**
___ **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks: Depressional area with standing water up to 6"

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 ac Human made? No Is wetland part of a wildlife corridor? ✓ or a "habitat island"?

Adjacent land use ROAD/RESIDENTIAL Distance to nearest roadway or other development 50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? TOP

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 224

Latitude 38.975211 Longitude -77.178032

Prepared by: MBS Date 5-2-2018

Wetland Impact:
Type PFO Area 0.02 acre

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration	✓				
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export	✓				
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANES STUDY		**Feature ID:** 22V	**Stream Order:** 1
Date: 5-9-2018	**State:** MD	**Photos:** 2733-2735	
Crew: MBS/SJF	**County:** MONTGOMERY	**Last Flag Number:** 12	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year) R4	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: SOME STANDING WATER W/ CHANNEL, WRACK LINE AND SCOUR INDICATE PERIODIC HIGH FLOW			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 22J	Downstream: ROADSIDE SWALE/18" RCP (outside study area)	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 1–4'	☒ Silts	☒ Sands	☐ Muck	RB: HEDGEROW/ RIPRAP
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: ERODED	☐ Bedrock	☐ Concrete		LB:
☐ Other:		Side slope: ☒ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI — Month: APRIL Year: 2018												
● No rain	○ 0-0.5	○	○	○	○	○	●	○	○	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community	
	☒ Leaf litter disturbed	☒ Presence of wrack line	☐ Other:	

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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:

Notes:

Ephemeral Stream Assessment Form (Form 1a)

Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	EPH - R6	02070008	8/20/2018	~~DJ~~ 22VV		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Conditional Category								NOTES>> Both sides of the stream are wetland/floodplain mosaic.
	Optimal	Suboptimal		Marginal		Poor		
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	
		High	Low	High	Low	High	Low	
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5	

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	100%						100%			
	Score >	1.5									
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI >	1.50	CI
	Score >	1.5							Lt Bank CI >	1.50	1.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.75

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>	0

CR = RCI X LF X IF

INSERT PHOTOS:





DESCRIBE PROPOSED IMPACT:

DATA FORM Verified 10/31/18 MRS
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ I-495/I-270 MANAGED LANES STUDY	**Date:** ~~8/24/04~~ 10/31/18
Project No: 103-087	**County:** Montgomery
Applicant/Owner: SHA	**State:** MD
Investigators: ~~WMM/DAL~~ ~~HES~~ MRS	**Plot ID:** ~~W-132, DP#1~~ 22W-WET

Do Normal Circumstances exist on the site?	Yes	No	**Community ID:** PEM 1Yx
Is the site significantly disturbed (Atypical Situation)?	Yes	No	**Transect ID:**
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes	No	**Field Location:**

VEGETATION **(USFWS Region No.1)**

Dominant Plant Species (Latin/Common)	Stratum	Indicator	Dominant Plant Species (Latin/Common)	Stratum	Indicator
Sagittaria latifolia Broad-leaf Arrowhead	Herb	OBL			
Cyperus strigosus Straw-color flatsedge	Herb	FACW			
Typha augustifolia Narrow-leaf cattail	Herb	OBL			
Potamogeton epihydrus Ribbonleaf pondweed	Herb	OBL			

Percent Dominant Species that are OBL, FACW, or FAC: 100% (excluding FAC-)
FAC Neutral: Yes
Numeric Index:

Remarks:
Emergent marsh in C&O Canal Photos 0404-0413

HYDROLOGY

___ **Recorded Data (Describe in Remarks):**
- ___ **Stream, Lake or Tide Gauge**
- ___ **Aerial Photographs**
- ___ **Other**

__ **No Recorded Data**

Field Observations

- **Depth of Surface Water:** N/A inches
- **Depth to Free Water in Pit:** 8 inches
- **Depth to Saturated Soil:** 0 inches

Wetland Hydrology Indicators

Primary Indicators
- ___ **Inundated**
- X **Saturated in Upper 12 Inches**
- X **Water marks**
- ___ **Drift Lines**
- X **Sediment Deposits**
- ___ **Drainage patterns in Wetlands**

Secondary Indicators (2 or more required)
- ___ **Oxidized Root Channels in Upper 12 Inches**
- X **Water-Stained Leaves**
- ___ **Local Soil Survey Data**
- X **FAC-Neutral Test**
- ___ **Other (Explain in Remarks)**

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: ~~Capital Beltway~~ **Project No:** ~~103-087~~ **Applicant/Owner:** SHA **Investigators:** ~~WMM/DAL~~ MRS	**Date:** ~~8/24/04~~ 10/31/18 **County:** Montgomery **State:** MD **Plot ID:** ~~W-132, DP#1~~ ZZW-WET

SOILS

Map Unit Name (Series and Phase): Elk silt loam, 0-3% slopes, occasionally flooded
Map Symbol: 43A **Drainage Class:** Well **Mapped Hydric Inclusion?** No
Taxonomy (Subgroup): Ultic Hapludulfs **Field Observations Confirm Mapped Type?** **Yes** **No**

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8		5Y4/1	N/A	None	Silty clay
8-12+		5Y3/1	N/A	None	Silty clay

Hydric Soil Indicators:

___ **Histosol**
___ **Histic Epipedon**
___ **Sulfidic Odor**
___ **Aquic Moisture Regime**
___ **Reducing Conditions**
___ **Gleyed or Low Chroma Colors**
___ **Concretions**
___ **High Organic Content in Surface Layer in Sandy Soils**
___ **Organic Streaking in Sandy Soils**
___ **Listed on Local Hydric Soils List**
___ **Listed on National Hydric Soils List**
___ **Other (Explain in Remarks)**

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation present?	Yes	No	Is the Sampling Point within the Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland >0.60 Ac Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"?

Adjacent land use forest, tow path Distance to nearest roadway or other development 0-150 Ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Middle

How many tributaries contribute to the wetland? Several * Wildlife & vegetation diversity/abundance (see attached list)

* outside study area

Wetland I.D. 22W - C+O canal

Latitude 38.977241 Longitude -77.178573

Prepared by: MMS Date 10/31/15

Wetland Impact:
Type PEM Area >0.60Ac

Evaluation based on:
Office ____ Field ✓

Corps manual wetland delineation completed? Y ✓ N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓	2, 7, 15, 8, 13		
Floodflow Alteration	✓		3, 4, 5, 6, 7, 8, 9, 10, 13, 15	✓	
Fish and Shellfish Habitat		✓	4, 7		
Sediment/Toxicant Retention	✓		1, 2, 3, 4, 5, 6,		
Nutrient Removal	✓		3, 4, 5, 6, 7, 8, 9, 10, 11		
Production Export	✓		1, 2, 4, 7, 5, 8, 9, 12, 14		
Sediment/Shoreline Stabilization		✓	3, 15		
Wildlife Habitat	✓		3, 4, 5, 6, 7, 8, 9, 13, 14, 19, 20, 21,	✓	
Recreation	✓		1, 4, 6, 9, 12		
Educational/Scientific Value		✓	5		
Uniqueness/Heritage	✓		12, 13, 16, 17, 19, 21, 22, 23, 25	✓	C+O canal
Visual Quality/Aesthetics		✓	2, 3, 5, 7, 8, 9, 12		
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Ephemeral Stream Assessment Form (Form 1a)

Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	INT R4SB/ EPH R6	02070008	8/20/2018	~~DK/DL~~ 22WW/22XX		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Conditional Category								NOTES>> Both sides of the stream are wetland/floodplain mosaic.
	Optimal	Suboptimal		Marginal		Poor		
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with >30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	
		High	Low	High	Low	High	Low	
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5	

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	100%						100%			
	Score >	1.5									
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI >	1.50	CI
	Score >	1.5							Lt Bank CI >	1.50	1.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.75

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>	0

CR = RCI X LF X IF

INSERT PHOTOS:





DESCRIBE PROPOSED IMPACT:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 MANAGED LANES STUDY City/County: MONTGOMERY Sampling Date: 5-09-18
Applicant/Owner: SHA State: MD Sampling Point: 22X-WET
Investigator(s): MVBS/SJF Section, Township, Range: POTOMAC
Landform (hillslope, terrace, etc.): BOWL Local relief (concave, convex, none): CONCAVE Slope (%): 3
Subregion (LRR or MLRA): MLRA Lat: 38.974275 Long: -77.177721 Datum: NAD83
Soil Map Unit Name: Watchung, Travilah, Elk NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
In floodplain of 22Q, Photos 2740-2742

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 2"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: ZZX-WET

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	100	✓	FAC
2.			
3.			
4.			
5.			
6.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Sapling Stratum (Plot size: 30')			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30')			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10'X20')			
1. Juncus effusus	10	N	OBL
2. Cinna arundinacea	20	✓	FACW
3. Carex sp.	10	N	N/A
4. Toxicodendron radicans	40	✓	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		

50% of total cover: 40 20% of total cover: 16

Woody Vine Stratum (Plot size: _____)			
1. Celastrus orbiculatus	5	✓	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 22X-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	GLEY2 5/5B	60	2.5YR 3/6	40	C	M	clay	
8-15	GLEY2 5/5B	20	5YR 4/6	15	C	PL	sandy clay	
	5Y 5/1	65						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 AC Human made? No Is wetland part of a wildlife corridor?_____ or a "habitat island"? ✓

Adjacent land use ROADWAY Distance to nearest roadway or other development 90 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 22X

Latitude_____ Longitude_____

Prepared by: MBS Date 5-9-18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	✓				
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 MANAGED LANES STUDY City/County: MONTGOMERY Sampling Date: 5-9-2018
Applicant/Owner: SHA State: MD Sampling Point: 22Y-WET
Investigator(s): MBS/SJF Section, Township, Range: POTOMAC
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): NONE Slope (%): 3
Subregion (LRR or MLRA): MLRA 148 Lat: 38.974208 Long: -77.177566 Datum: NAD83
Soil Map Unit Name: Watchung, Travilah, Elk NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Photos 2743-2744 Drains to waters feature 22Q.
PFO portion is 22R.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 3"
Water Table Present?	Yes ✓	No _____	Depth (inches): 12"
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 224-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Sapling Stratum (Plot size: 10' x 30')			
1. Green ash (Fraxinus pennsylvanica)	5	Y	FACW
2. River birch (Betula nigra)	5	Y	FACW
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: 10' x 30')			
1. Juncus effusus	20	Y	OBL
2. Dichanthelium clandestinum	15	Y	FACW
3. Carex cf. vaginata	20	Y	FACW
4. Microstegium vimineum	15	Y	FAC
5. Carex sp.	10	N	N/A
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 224-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	Gley1 5/10Y	85	5YR 4/4	15	C	M/PL	silty clay loam	
12-18	5YR 2.5/1	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 Human made? No Is wetland part of a wildlife corridor?_____ or a "habitat island"? ✓

Adjacent land use ROADWAY Distance to nearest roadway or other development ~100ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 224

Latitude_____ Longitude_____

Prepared by: MBS Date 5-9-18

Wetland Impact:
Type_____ Area_____

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		✓			
Floodflow Alteration		✓			
Fish and Shellfish Habitat		✓			
Sediment/Toxicant Retention	✓				
Nutrient Removal	✓				
Production Export		✓			
Sediment/Shoreline Stabilization		✓			
Wildlife Habitat	✓				
Recreation		✓			
Educational/Scientific Value		✓			
Uniqueness/Heritage		✓			
Visual Quality/Aesthetics		✓			
ES Endangered Species Habitat		✓			
Other					

Notes:

* Refer to backup list of numbered considerations.

I-495/I-270 MANAGED LANES STUDY **Waters of the U.S. Data Sheet** VERIFIED 5-9-2018 MBS/SJF

Project: ~~I-495 IRVM – Montgomery County~~		**Feature ID:** ~~01-N~~ 227	**Stream Order:** 3rd
Date: ~~11/24/14~~ 5/9/2019	**State:** MD	**Photos:** ~~10~~ 2745-2746	
Crew: ~~AT MN AM~~ MBS/SJF	**County:** Montgomery	**Last Flag Number:** ~~01-N-08A, 01-N-07B~~ LIDAR	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: 6-12in of water in stream at time of field visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: outside of study area	Downstream: ~~W111M~~ 22AA	Adjacent/Abutting: ~~01-O~~ 22GG

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 40'	☐ Silts	✓ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6'	✓ Cobbles	✓ Gravel	☐ Other: rip-rap	
✓ Manipulated (man-altered)	Bank Erosion/stability: moderate erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: stream name is Booze Creek, flows through culvert, lined with rip-rap, ~~plantings along bank~~

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: October	Year: 2014
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	○	◉	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events	
	✓ Vegetation matted down, bent, or absent	✓ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Stream Assessment Form (Form 1)

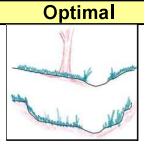
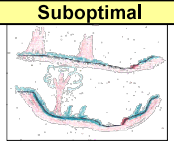
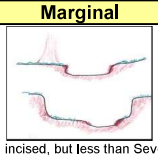
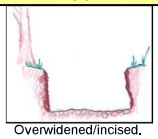
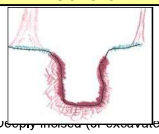
Unified Stream Methodology for use in Virginia

For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
	I-495 NEXT	Fairfax	R3	02070008	8/20/2018	~~SH~~22ZZ		

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	unnamed tributary to the Potomac River

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

	Conditional Category					
	Optimal	Suboptimal	Marginal	Poor	Severe	
Channel Condition	 Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	 Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	 Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may bevertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which contribute to stability.	 Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	 Deeply incised (or excavated), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	2.0
NOTES>>	Inscision evident on approximately 50% of the stream banks with some veritcle banks.					

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Conditional Category							
	Optimal	Suboptimal		Marginal		Poor		NOTES>> The stream is surrounded by homes and roads although the majority of the buffer is higher quality with some evidence of disturbance in locations.
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	**High Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	**High Marginal:** Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	**Low Marginal:** Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	**High Poor:** Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	
		High	Low	High	Low	High	Low	
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5	

1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.
2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.
3. Enter the % Riparian Area and Score for each riparian category in the blocks below.

Ensure the sums of % Riparian Blocks equal 100

Right Bank	% Riparian Area>	60%	30%	10%				100%		
	Score >	1.2	0.75	0.5						
									CI= (Sum % RA * Scores*0.01)/2	
Left Bank	% Riparian Area>	40%	40%	20%				100%	Rt Bank CI > 1.00	CI
	Score >	1.5	0.85	0.5					Lt Bank CI > 1.04	1.02

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

	Conditional Category					
	Optimal	Suboptimal	Marginal	Poor	NOTES>> Habitat elements are marginal for the majority of the stream.	
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.		CI
Score	1.5	1.2	0.9	0.5		0.90

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R3	0207008	8/20/18	SH		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> It appears that a good portion of the stream has been straightened.

	Conditional Category						
	Negligible	Minor		Moderate		Severe	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.	
SCORE	1.5	1.3	1.1	0.9	0.7	0.5	0.90

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>	0.96
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	0
CR = RCI X LF X IF	

INSERT PHOTOS:





DESCRIBE PROPOSED IMPACT:

Waters of the U.S. Data Sheet

Project: I-495/I-270 MANAGED LANE Study		**Feature ID:** 23A	**Stream Order:** 3RD
Date: 3-28-18	**State:** MD	**Photos:** UPSTREAM / DOWNSTREAM	
Crew: W. Iwupack, P. Scherr	**County:** Montgomery	**Last Flag Number:** 23A (1A-31A), (1B-32B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: BASE FLOW OBSERVED DURING INVESTIGATION. STREAM IS THOMAS BRANCH (USE I-2)			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: POND UNDER 270	Downstream: Cabin John Branch ↳ Beyond study area into segment 21	Adjacent/Abutting: NA

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 15'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 4'	☒ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Moderate	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: MARCH	Year: 2018
○	No rain	○	0-0.5	○	○	○	○	○	●	○	⊗	○	○	○	○	○		
●	Light rain	●	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

Waters of the U.S. Data Sheet

Project: I270/I495 Managed Lanes Study		**Feature ID:** 23AA	**Stream Order:** 2nd
Date: 5/29/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: NL, BW	**County:** Montgomery	**Last Flag Number:** 23AA (1A-13A) (1B-14B)	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	(X) RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flow of about 3" observed during time of site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: piped under ramp	Downstream: piped under ramp	Adjacent/Abutting: wetland 23BB

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
[X] Natural Channel Shape	Width: 2-3'	[X] Silts	[X] Sands	[ ] Muck	RB: Forested
[ ] Artificial (man-made)	Depth: 2-4"	[ ] Cobbles	[ ] Gravel	[ ] Other:	
[X] Manipulated (man-altered)	Bank Erosion/stability: Good	[ ] Bedrock	[ ] Concrete		LB: Forested
[ ] Other:		Side slope: [X] ≥1:1 [ ] 2:1 [ ] 3:1 [ ] ≤4:1			

Notes: Intermittent stream piped under ramps to + from I-270

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: May Year: 18												
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
[X] Yes	[X] Clear, natural line impressed on the bank	[X] Sediment deposition	[ ] Sediment sorting	
[ ] No	[ ] Changes in the character of soil	[ ] Water staining	[ ] Scour	
	[ ] Shelving	[ ] Presence of flood litter/debris	[ ] Observed/predicted flow events	
	[X] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495 / I-270 Managed Lanes study City/County: Montgomery Sampling Date: 5/29/18
Applicant/Owner: MD State Highway Administration State: MD Sampling Point: 23BB-WET
Investigator(s): NL, BW Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Flood plain Local relief (concave, convex, none): None Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0203 Long: -77.1434 Datum: NAD83
Soil Map Unit Name: Baile silt Loam, 0-3 percent slopes NWI classification: PEMIA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	Is the Sampled Area within a Wetland? Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:
23BB is a PEM wetland located adjacent to 23AA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 5"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Receives hydrology from floodflow from 23AA and storm run off from 270.

Photos: 23BB-WET_Northeast

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23BB-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30 ft)			
1. Liquidambar styraciflua	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Herb Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	20	Y	FAC
2. Microstegium vimineum	40	Y	FAC
3. Carex lurida	15	N	OBL
4. Juncus effusus	10	N	FACW
5. Lonicera japonica	8	N	FACU
6. Asclepias incarnata	3	N	OBL
7.			
8.			
9.			
10.			
11.			
	96 = Total Cover		

50% of total cover: 48 20% of total cover: 19.2

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23BB - WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/1	94	7.5YR 4/4	6	C	M	Silt Loam	
3-12	10YR 5/1	95	7.5YR 6/8	5	C	M	Silt Loam	
12-20	10YR 6/1	80	10YR 7/8	10	C	M	Clay Loam	
			10YR 6/8	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I-270/Forested upland Distance to nearest roadway or other development 31 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23BB

Latitude 39.0203 Longitude -77.1434

Prepared by: RS Date 6/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	NO			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	NO			
Recreation	NO			
Educational/Scientific Value	NO			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	NO			
ES Endangered Species Habitat	NO			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495 / I-270 MANAGED LANE STUDY		**Feature ID:** 23C	**Stream Order:** 1st
Date: 3-28-18	**State:** MD	**Photos:** UPSTREAM / DOWNSTREAM	
Crew: W. Twupack, P. Scherr	**County:** Montgomery	**Last Flag Number:** 23C (1A-4A)(1B-4B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of visit, defined bed and banks			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Golf Course Pond	Downstream: 23A	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☒ Silts	☐ Sands	☒ Muck	RB: FORESTED
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☒ Other: LEAF LITTER	
☒ Manipulated (man-altered)	Bank Erosion/stability: NONE	☐ Bedrock	☐ Concrete		LB: FORESTED
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: 2 inches of flowing water in channel. Drains to Thomas Branch USE I-P

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: March Year: 2018											
○ No rain	○ 0-0.5	○	○	○	○	○	●	○	☒	○	○	○	○
● Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lane Study City/County: Montgomery Sampling Date: 8/30/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 23CC-UPL
Investigator(s): WT, JH Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0293934 Long: -77.142300 Datum: NAD83
Soil Map Unit Name: Glenelg silt loam (2B) NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:
Area is a forested upland adjacent to 23CC

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology observed

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23CC-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	30	Yes	FACU
2. Acer rubrum	20	Yes	FAC
3. Juniperus virginiana	5	No	FACU
4.			
5.			
6.			
	55	= Total Cover	

50% of total cover: 27.5 20% of total cover: 11

Sapling Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Shrub Stratum (Plot size: 30 ft)			
1. Diervilla lonicera	40	Yes	UPL
2.			
3.			
4.			
5.			
6.			
	40	= Total Cover	

50% of total cover: 20 20% of total cover: 8

Herb Stratum (Plot size: 30 ft)			
1. Apocynum cannabinum	20	Yes	FACU
2. Lonicera japonica	15	Yes	FACU
3. Rosa multiflora	15	Yes	FACU
4. Parthenocissus quinquefolia	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	

50% of total cover: 30 20% of total cover: 12

Woody Vine Stratum (Plot size: 30 ft)			
1. Vitis labrusca	15	Yes	FACU
2.			
3.			
4.			
5.			
	15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23CC-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/6	100	10YR 5/6	10	C	M	Silt loam	
4-20	10YR 6/6	95	10YR 5/4	5	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lane Study City/County: Montgomery Sampling Date: 8/30/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 23CC-WET
Investigator(s): WT, SH Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0292829 Long: -77.1424107 Datum: NAD 83
Soil Map Unit Name: Glenelg silt loam (2B) NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐
Hydric Soil Present? Yes ☑ No ☐
Wetland Hydrology Present? Yes ☑ No ☐
Is the Sampled Area within a Wetland? Yes ☑ No ☐

Remarks:
23CC is located ~~east~~ west of I-270 and east of 23E. Wetland drains into 23E

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes ☑ No ☐ Depth (inches): 0.5"
Water Table Present? Yes ☐ No ☑ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
23CC receives hydrology from an outfall and sheetflow from I-270.

Flags: 23CC(1-20)

Photos: 23CC-WET_North
23CC-UPL_South

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 23CC-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pensylvanica	60	Yes	FACW
2. Acer rubrum	10	No	FAC
3. Platanus occidentalis	10	No	FACW
4.			
5.			
6.			
	80	= Total Cover	
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 30 ft)			
1. Ulmus americana	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 30 ft)			
1. Dierville lonicera	80	Yes	UPL
2. Linders benzoin	10	Yes	FAC
3. Rosa multiflora	2	No	FACU
4.			
5.			
6.			
	32	= Total Cover	
50% of total cover: 16	20% of total cover: 6.4		
Herb Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	30	Yes	FAC
2. Persicaria hydropiperoides	15	Yes	OBL
3. Persicaria pensylvanica	5	No	FACW
4. Microstegium vimineum	5	No	FAC
5. Juncus effusus	5	No	FACW
6. Bohmeria cylindrica	5	No	FACW
7. Dichanthelium clandestinum	5	No	FAC
8.			
9.			
10.			
11.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23CC-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	100					Silt loam	Saturated
4-12	10YR 4/2	90	10YR 3/1	10	D	M	silty clay	Saturated
12-20	10YR 4/3	80	10YR 3/1	10	D	M	silty clay	Saturated
			10YR 5/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.3Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway, Industrial Distance to nearest roadway or other development 26Ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23CC

Latitude 39.029289 Longitude -77.142107

Prepared by: RS Date 9/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	Yes			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	Yes			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 23D	**Stream Order:** 1st
Date: 4/5/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: WT, RS	**County:** Montgomery	**Last Flag Number:** No changes to feature	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	◉ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Water present at time of visit, but feature is a toe-of-slope ditch draining from 23-SWM8			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 23-SWM8	Downstream: 23A	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 7'	☑ Silts	☑ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2'	☑ Cobbles	☑ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☑ Other: Piped	Moderate erosion but stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April	Year: 2018
◉ No rain	◉ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		Feature ID: 2300	Stream Order: 1st
Date: 8/27/18	State: MD	Photos: Upstream / Downstream	
Crew: WT, RS	County: Montgomery	Last Flag Number: 2300-3A, 2300-3B	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Base Flow of water during Field Investigation. 1" Flowing water

Hydrologic Connectivity –	Upstream: NA	Downstream: 23K	Adjacent/Abutting: NA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☒ Artificial (man-made)	Depth: 1'	☒ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Minor Erosion / Good Stability	Side slope: ☒ ≥10:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: August Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	☒	○	○	
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	☒ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		Feature ID: 23E	Stream Order: 2nd
Date: 8/27/18	State: MD	Photos: Upstream / Downstream	
Crew: WT, RS	County: Montgomery	Last Flag Number: 23E-6A, 23E-7B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Base Flow observed at time of field investigation.

Hydrologic Connectivity –	Upstream: 23CC	Downstream: Drains outside Study Area	Adjacent/Abutting: 23CC

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 6'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3'	☐ Cobbles	☒ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate Erosion	Side slope: ☐ ≥10:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.index.php) Month: August Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	☒	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	☒ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: I270/I495 Managed Lane Study City/County: Montgomery Sampling Date: 11/7/18

Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: Z3EE-WET

Investigator(s): RS SH Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1%

Subregion (LRR or MLRA): LRR S MLRA 149A Lat: 39.029685 Long: -77.125613 Datum: NAD 83

Soil Map Unit Name: Glenelg silt loam (2C), Glenville silt loam (5B) NWI classification: PFO1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:
Visited after 2 days of heavy rain.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) (LRR U)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0.5"

Water Table Present? Yes _____ No ✓ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 6"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Recieves hydrology from runoff of adjacent upland areas.

flags: Z3EE (1-7)

Photos: Z3EE

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 23EE WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	30	Y	FAC
2. Acer rubrum	20	Y	FAC
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1. Lonicera maackii	10	Y	UPL
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30 ft)			
1. Juncus effusus	5	N	OBL
2. Poa sp.	20	Y	NI
3. Vitis labrusca	10	Y	FAC
4. Microstegium vimineum	10	Y	FAC
5. Peltandra virginica	5	N	OBL
6. Boehmeria cylindrica	5	N	FACW
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	5	x 2 =	10
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	95 (A)		280 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: 23FE-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	80	10YR 4/6	20	C	M	Silty Clay Loam	Saturated
7-10	10YR 4/2	60	10YR 4/3	40	C	M	Silty Clay Loam	Saturated
11-15	10YR 4/1	65	10YR 2/2	35	D	M	Silty Clay	Saturated
16-24	10YR 5/3	60	10YR 3/2	20	D	M	Silty Clay	Saturated
			10YR 6/8	20	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.04 Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Road way Distance to nearest roadway or other development 30 Ft

Dominant wetland systems present PEO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23EE

Latitude 39.0296 Longitude -77.12563

Prepared by: SH Date 11/16/18

Wetland Impact:
Type N/A Area N/A

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	No			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 MANAGED LANE City/County: Rockville/Montgomery Sampling Date: 8/27/18
Applicant/Owner: SHA State: MD Sampling Point: 23F-UPL
Investigator(s): WT, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5-10
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.034585 Long: -77.144624 Datum: 83
Soil Map Unit Name: GA:la Silt loam (1C) 8-15% slope NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	Is the Sampled Area within a Wetland? Yes [ ] No [X]
Hydric Soil Present?	Yes [ ]	No [X]	
Wetland Hydrology Present?	Yes [ ]	No [X]	

Remarks:
Forested Upland Adjacent to 23F-WET.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [X]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [X]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [X]	Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [X]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology observed

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23F-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	50	Y	FACU
2. Fagus grandifolia	10	N	FACU
3. Quercus alba	10	N	FACU
4. Carya tomentosa	10	N	NL
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Sapling Stratum (Plot size: 30 ft)			
1. Nyssa sylvatica	15	Y	FAC
2. Ilex opaca	15	Y	FACU
3. Acer rubrum	15	Y	FAC
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		

Shrub Stratum (Plot size: 30 ft)			
1. Lindera benzoin	30	Y	FAC
2. Lonicera tatarica	5	N	FACU
3.			
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		

Herb Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	15	Y	FAC
2. Microstegium vimineum	30	Y	FAC
3. Lonicera japonica	15	Y	FAC
4. Parthenocissus quinquefolia	5	N	FACU
5. Rubus phoenicolasius	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23F-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/4	100					Silt Loam	
6-12	10YR 5/6	100					Silt Loam	
12-20	10YR 5/6	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 MANAGED LANE City/County: Rockville/Montgomery Sampling Date: 8/27/18
Applicant/Owner: SHA State: MD Sampling Point: 23F-WET
Investigator(s): WT, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): ~~Hillslope~~ Depression Local relief (concave, convex, none): CONCAVE Slope (%): 2-5
Subregion (LRR or MLRA): LRR S MLRA 147 Lat: 39.0346995 Long: -77.144768 Datum: 83
Soil Map Unit Name: Gaila silt loam (GC) 8-15% Slope NWI classification: PEMIA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
Palustrine emergent wetland abutting 23K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [X]	Depth (inches):
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area receives runoff from adjacent forested uplands.

Flags: 23F(1-19)

Photos: 23F-PEM_West 23F_UPL_South
23F_PEM_North

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23F-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot size: 30 ft)			
1. Nyssa sylvatica	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 30 ft)			
1. Microstegium Vimineum	90	Y	FAC
2. Persicaria perfoliata	20	N	FAC
3. Woodwardia areolata	10	N	FACW
4. Persicaria hydropiperoides	10	N	OBL
5. Scirpus cyperinus	5	N	FACW
6. Boehmeria cylindrica	5	N	FACW
7.			
8.			
9.			
10.			
11.			
	140 = Total Cover		
50% of total cover: 70	20% of total cover: 28		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23F-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	95	10YR 4/6	5	C	M	Silty clay	Sat.
5-20	Gley 1 4/5GL	100					Sandy clay	Sat.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☒ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 1.0 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested, roadway Distance to nearest roadway or other development 75ft

Dominant wetland systems present PEM | PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upstream

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23F

Latitude 39.034895 Longitude -77.414768

Prepared by: RS Date 9/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	9,10,12		
Floodflow Alteration	Yes	1,2,4,5,6,7,8,9,10,15,18		
Fish and Shellfish Habitat	Yes	1,2,3,4,7,8,12,14,16,17		Fish observed
Sediment/Toxicant Retention	Yes	1,2,5,9,10,12,16		
Nutrient Removal	Yes	3,4,8,9,19,11		
Production Export	Yes	1,2,6,7,8,12		
Sediment/Shoreline Stabilization	Yes	1,2,3,4,6,7,8,9,12,14,15		PEM and PFO areas
Wildlife Habitat	Yes	1,3,6,13,14,15,19,20,21,		
Recreation	No			No easy access
Educational/Scientific Value	No			No easy access or viewing
Uniqueness/Heritage	No	1,7,27		
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		Feature ID: 23~~RB~~FF	Stream Order: 1st
Date: 11/7/18	State: MD	Photos: Upstream, downstream	
Crew: BS SH	County: Montgomery	Last Flag Number: 23~~RB~~FF (1-24)(1-23)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of site visit Average depth 1.5"

Hydrologic Connectivity –	Upstream: Beyond study area	Downstream: 23R	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 5'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 2'	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: November Year: 2018												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊘	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊗ >1	Severe Drought			Moderate Drought		Normal			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			
☐ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 23G	**Stream Order:** 3rd
Date: 3-28-18	**State:** MD	**Photos:** upstream / downstream	
Crew: Nicole Lindsey, Bob Swam	**County:** Montgomery	**Last Flag Number:** 23G (1A-11A) (1B-13B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing during site visit with minimum 6" depth			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Piped under 270	Downstream: Beyond study area	Adjacent/Abutting: 23S, 23H

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 8-10'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6-12"	☑ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: March Year: 2018												
○ No rain	○ 0-0.5	○	○	○	○	○	○	○	☒	○	○	○	○	○
● Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I270/I495 Managed Lane Study City/County: Montgomery Sampling Date: 11/20/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 23UPL-WET
Investigator(s): SH, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1%
Subregion (LRR or MLRA): LRR S MLRA 147A Lat: 39.037317 Long: -77.147063 Datum: NAD83
Soil Map Unit Name: Hatboro silt loam (54A), Baile silt loam (16) NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [x] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [x] No [ ]
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [✓] No [ ] Depth (inches): 0.5"
Water Table Present? Yes [✓] No [ ] Depth (inches): 0"
Saturation Present? (includes capillary fringe) Yes [✓] No [ ] Depth (inches): 0"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flags: 23UPL (1-12)

Buttressed tree roots.

Ravines hydrology from roadside runoff and sheetflow from adjacent uplands.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 286 G-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Y	FAC
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling Stratum (Plot size: 30 ft)			
1. Acer rubrum	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 30 ft)			
1. Lindera benzoin	40	Y	FACW
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 30 ft)			
1. Rumex britannica	10	Y	OBL
2. Parathelypteris noveboracensis	20	Y	FAC
3. Symplocarpus foetidus	5	N	OBL
4. Lonicera japonica	10	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23Glt-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	80	10YR 4/6	20	C	M	Clay	Saturated
3-10	10YR 5/2	60	5YR 4/6	40	C	M	Clay	Saturated
11-20	10YR 4/2	50	10YR 5/6	40	C	M	Clay	Saturated
			5YR 4/6	10	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.32 Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway Distance to nearest roadway or other development 20 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23GG

Latitude 39.027157 Longitude -77.147063

Prepared by: SH Date 11/26/18

Wetland Impact:
Type N/A Area N/A

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 23H	**Stream Order:** 1st
Date: 3/28/18	**State:** MD	**Photos:** 23H_upstream / downstream	
Crew: Nicole Lindsey, Rob Swam	**County:** Montgomery	**Last Flag Number:** 23H-3A / 23H-3B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	✓ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: No flow observed during site investigation, defined bed and bank

Hydrologic Connectivity –	Upstream: N/A	Downstream: Drains to 23G	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
✓ Natural Channel Shape	Width: 5'	✓ Silts	☐ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 2'	☐ Cobbles	✓ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ✓ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Recieves runoff from adjacent roadways and uplands

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers.php) Month: March Year: 18												
○ No rain	○ 0-0.5	○	○	○	○	○	○	○	⊗	○	○	○	○	○
● Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	☐ Observed/predicted flow events
	✓ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lane City/County: Rockville/Montgomery Sampling Date: 8/27/18
Applicant/Owner: SHA State: MD Sampling Point: 23HH-WET
Investigator(s): WT, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5-10
Subregion (LRR or MLRA): LRR SMLRA 148 Lat: 39.0345300 Long: -77.144590 Datum: 83
Soil Map Unit Name: Gaila silt loam (1C) 8-15% slope NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
Palustrine Forested WETLAND adjacent to 23K.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- [X] Surface Water (A1)
- [ ] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [X] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [X] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): ½"
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
WETLAND FED By Spring Seep in hillside.

Flags: 23F(1-19)

Photos: 23HH_PFO_South 23HH_UPL_South

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23HH-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa Sylvatica	60	Y	FAC
2. Liriodendron tulipifera	5	N	FACU
3.			
4.			
5.			
6.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		

Sapling Stratum (Plot size: 30 ft)			
1. Nyssa sylvatica	15	Y	FAC
2. Carpinus caroliniana	15	Y	FAC
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Shrub Stratum (Plot size: 30 ft)			
1. Lindera benzoin	40	Y	FAC
2. Smilax rotundifolia	5	N	FAC
3. Euonymous atropurpureus	5	N	FACU
4. Berberis Vulgaris	2	N	FACU
5.			
6.			
	52 = Total Cover		
50% of total cover: 26	20% of total cover: 10.4		

Herb Stratum (Plot size: 30 ft)			
1. Symplocarpus foetidus	20	Y	OBL
2. Arisaema triphyllum	20	Y	FACW
3. Impatiens capensis	10	~~N~~ Y	FACW
4. Woodwardia areolata	10	~~N~~ Y	FACW
5. Polystichum acrostichoides	5	N	FACU
6. Persicaria hydropiperoides	5	N	OBL
7. Microstegium Vimineum	5	N	FAC
8. Osmundastrum cinnamomeum	5	N	FACW
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ~~8~~ 6 (A)

Total Number of Dominant Species Across All Strata: ~~8~~ 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 23HH-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Silt loam	Saturated
3-12	10YR 5/2	75	10YR 5/6	25	C	M	Sand	saturated/gravel
12-17	10YR 4/1	100					Sand	Saturated
17-20	Gley 1 5/10Y	100					Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Final

Wetland Function-Value Evaluation Form

Total area of wetland_____ Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 105 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23HH

Latitude 39.0345300 Longitude -77.144590

Prepared by: RS Date 1/31/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			Fed by groundwater seep
Floodflow Alteration	Y			Holds stormwater from surrounding uplands
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			Dense vegetation traps sediments
Nutrient Removal	N			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Montgomery County Sampling Date: 1/31/19
Applicant/Owner: MDOT SHA State: MD Sampling Point: 23J-KK-UPL
Investigator(s): WT, PS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 4-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0303988 Long: -77.132483 Datum: NAD83
Soil Map Unit Name: Baile silt loam (6A) NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [ ]	

Remarks:
Area is a hillslope on the edge of 23J-WET and 23KK-WET.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology observed

Photo: 23J-KK-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23J-KK-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 30 ft)			
1. Pinus virginiana	40	Yes	UPL
2. Salix nigra	5	No	OBL
3. Platanus occidentalis	5	No	FACW
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25 20% of total cover: 10

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30 ft)			
1. Rosa multiflora	20	Yes	FACU
2. Rubus phoenicolasius	15	Yes	FACU
3. Solidago canadensis	10	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		

50% of total cover: 22.5 20% of total cover: 9

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 23J-KK-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	5YR 4/6	100					Silt loam	
15-20	5YR 5/2	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Montgomery County Sampling Date: 1/31/18
Applicant/Owner: MDOT SHA State: MD Sampling Point: 23J-WET
Investigator(s): WT, PS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0306189 Long: -77.132837 Datum: NAD83
Soil Map Unit Name: Gaila silt loam (1C) NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [✓]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:
23J is a PFO portion of 23-SWM5 which is in-line with an intermittent stream. PFO borders the edge of the PEM portion 23KK.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [✓] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 1"
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
23J receives hydrology from runoff from adjacent uplands and parking lots along with an intermittent stream that comes from the other side of Rockledge Drive.

Delineated via aerial imagery after agency field review.

Photos: 23J-WET_East
23J-KK-UPL_East

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23J-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus incana	25	Yes	FACU
2. Salix nigra	10	Yes	OBL
3. Platanus occidentalis	10	Yes	FACW
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		

Sapling Stratum (Plot size: 30 ft)			
1. Alnus incana	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30 ft)			
1. Typha latifolia	60	Yes	OBL
2. Juncus effusus	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 23J-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	100					Silt loam	Saturated
6-12	10YR 5/2	100					Silt loam	Saturated
12-20	10YR 5/2	80	5YR 5/6	20	C	M	Silty clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

Final

Wetland Function-Value Evaluation Form

Total area of wetland 0.2 Ac Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Upland/developed Distance to nearest roadway or other development 106 ft.

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23J

Latitude 39.0306189 Longitude -77.132837

Prepared by: RS Date 1/31/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed lane Study		**Feature ID:** 23K	**Stream Order:** 2nd
Date: 8/27/18	**State:** MD	**Photos:** 23K-Upstream_East, 23K-Downstream_West	
Crew: WT, RS	**County:** Montgomert	**Last Flag Number:** 23K-33A / 23K-33B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Base flow at time of field investigation, approximately 4" of water present			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 23-SWM1	Downstream: 24A	Adjacent/Abutting: 23F

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
✓	Natural Channel Shape	Width: 9'	✓	Silts	✓	Sands	☐	Muck	RB: Forest/Wetland
☐	Artificial (man-made)	Depth: 3'	✓	Cobbles	✓	Gravel	☐	Other:	
☐	Manipulated (man-altered)	Bank Erosion/stability:	☐	Bedrock	☐	Concrete			LB: Forest/Wetland
☐	Other:	Moderate erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1						
Notes:									

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php												Month: August	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	◉	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	◉ >1	Severe Drought			Moderate Drought		Normal			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			
☐ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lane Study City/County: Montgomery County Sampling Date: 1/31/19
Applicant/Owner: MDOT SHA State: MD Sampling Point: 23KK-WET
Investigator(s): WT, PS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0307556 Long: -77.132741 Datum: NAD83
Soil Map Unit Name: Baile silt loam (6A) NWI classification: PEM1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [✓]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:
23KK is the PEM portion within 23-SWM5 that is in-line with an intermittent stream. The facility is man-made and is fully inundated and dominated by hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [✓] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 2"
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
23KK receives hydrology from runoff from adjacent uplands and parking lots along with flow from the in-line intermittent stream.

Delineated via aerial imagery after agency field review.

Photos: 23KK-WET_East
23J-KK-UPL_East

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23KK-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1. Salix nigra	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30 ft)			
1. Typha angustifolia	60	Yes	OBL
2. Persicaria sagittata	30	Yes	OBL
3. Scirpus cyperinus	20	No	FACW
4. Juncus effusus	20	No	FACW
5. Onoclea sensibilis	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	140 = Total Cover		
50% of total cover: 70	20% of total cover: 28		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 23KK-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/1						Silt loam	Saturated
3-8	5YR 4/4	70	7.5YR 5/6	30	C	M	Clay	Saturated
8-20	5YR 4/6	70	7.5YR 5/6	30	C	M	Clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

Final

Wetland Function-Value Evaluation Form

Total area of wetland 0.5 Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Upland/developed Distance to nearest roadway or other development 105 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23KK

Latitude 39.0307556 Longitude -77.132741

Prepared by: RS Date 1/31/19

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	5, 7, 9		
Floodflow Alteration	Y	2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17	X	Wetland is a constructed SWM pond designed to treat stormwater
Fish and Shellfish Habitat	N	14		
Sediment/Toxicant Retention	Y	1, 2, 3, 5, 9, 10, 11, 12, 13, 14, 15, 16	X	Designed to trap sediment and toxicants from stormwater
Nutrient Removal	Y	3, 5, 8, 9, 10, 11, 12, 13, 14	X	Constricted outlet and dense vegetation cover
Production Export	N	2, 7		
Sediment/Shoreline Stabilization	N	3, 4		
Wildlife Habitat	N	3, 13		
Recreation	N			
Educational/Scientific Value	N	3, 9		
Uniqueness/Heritage	N	1, 2, 8, 12, 17, 27		Multiple wetland classes present
Visual Quality/Aesthetics	N	1		
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		Feature ID: 23L	Stream Order: 1st
Date: 11/14/18	State: MD	Photos: upstream, downstream	
Crew: AS SH	County: Montgomery	Last Flag Number: NA	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Small but consistent flow of about 1/4" during time of visit

Hydrologic Connectivity –	Upstream: Unknown	Downstream: 23CC	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 4'	☐ Silts	☐ Sands	☐ Muck	RB: Scrub shrub
☒ Artificial (man-made)	Depth: 1'	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☒ Concrete		LB: Scrub Shrub
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Concrete channel ends as 23L flows into 23CC

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: November Year: 2018												
⊗ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊗	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊗ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

23L 12/18/18 RS
Confirmed

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270 ICM NB RM City/County: MONTGOMERY Sampling Date: 11-29-17
Applicant/Owner: SHA State: MD Sampling Point: NBRM-B-WET
Investigator(s): MH/MKS Section, Township, Range: ROCKVILLE
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CONCAVE Slope (%): 2%
Subregion (LRR or MLRA): MLRA-148 Lat: 39.02067° Long: -77.14300° Datum: NAD83
Soil Map Unit Name: Baile Silt Loam, 0-3% Slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Photos 540-542 23L is a PEM fringe along 23AA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: NBRM-B-WET

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 20% of total cover:

Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 20% of total cover:

Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

50% of total cover: 20% of total cover:

Herb Stratum (Plot size: 15'x4')			
1. Typha latifolia	80	Y	OBL
2. Microstegium vimineum	15	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: 20% of total cover:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: NKM-B-WET

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Silty clay	
6-8	7.5YR 2.5/1	95	10YR 4/4	5	C	M	Silty clay	
8-14	10YR 5/3	75	5YR 4/6	5	C	M	Silty clay	
	7.5YR 2.5/1	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01ac Human made? Y Is wetland part of a wildlife corridor? Y or a "habitat island"?

Adjacent land use ROADWAY Distance to nearest roadway or other development ~40'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? NO If not, where does the wetland lie in the drainage basin? MID

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23L

Latitude 39.0205996 Longitude -77.1429582

Prepared by: MBS Date 12/18/18

Wetland Impact:
Type Area

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X				
Floodflow Alteration	X				
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X				
Nutrient Removal	X				
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lane Study		**Feature ID:** 23M	**Stream Order:** 1st
Date: 5/1/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: WT, PS	**County:** Montgomery	**Last Flag Number:** 23M(1-4A)(1-4B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	☒ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Drains to 23N beyond study area Outfall from 23-SWM2

Hydrologic Connectivity –	Upstream: 23-SWM2	Downstream: 23N-Out of Study Area	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 8'	☒ Silts	☐ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Forested
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: Drains SWM feature, no flow observed

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: April Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	☒	○	○	○	○
○ Light rain	☒ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☐ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-270 + 1495 Managed Lane | Feature ID: 23N | Stream Order: 2nd
Date: 5/1/18 | State: MO | Photos: Upstream / Downstream
Crew: WT, PS | County: Montgomery | Last Flag Number: 23N (I-22A) (I-22B)

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: 23N Drains North into Old Farm Creek USE I-P

Hydrologic Connectivity – Upstream: Culvert, [redacted] | Downstream: Old Farm Creek | Adjacent/Abutting: [redacted] 23N to Outside of study area

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 9'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 1'	☒ Cobbles	☒ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Basic Stabilized w/ Rip Rap in some areas. Base Flow observed

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: April Year: 2018												
☒ No rain	☐ 0-0.5	○	○	○	○	○	☐	○	○	☒	○	○	○	○
○ Light rain	☒ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery County Sampling Date: 6/6/12
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 23P-UPL
Investigator(s): WT, BS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 15-25
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.026621 Long: -77.111743 Datum: NAD83
Soil Map Unit Name: Blocktown channery silt loam, 15 to 25 percent (116D) NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology observed

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DSP- UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	30	Yes	FACU
2. Liriodendron tulipifera	20	Yes	FACU
3. Carya tomentosa	10	No	UPL
4. Acer rubrum	10	No	FAC
5.			
6.			
	70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Sapling Stratum (Plot size: 30 ft)			
1. Robinia pseudoacacia	15	Yes	FACU
2. Fagus grandifolia	10	Yes	FACU
3. Sassafras albidum	5	No	FACU
4.			
5.			
6.			
	30	= Total Cover	

50% of total cover: 15 20% of total cover: 6

Shrub Stratum (Plot size: 30 ft)			
1. Dierville lonicera	25	Yes	UPL
2. Viburnum dentatum	5	No	FAC
3.			
4.			
5.			
6.			
	30	= Total Cover	

50% of total cover: 15 20% of total cover: 6

Herb Stratum (Plot size: 30 ft)			
1. Dierville lonicera	20	Yes	UPL
2. Rubus phoenicolasius	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25	= Total Cover	

50% of total cover: 12.5 20% of total cover: 5

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23P-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/4	100					Silt loam	
6-16	7.5YR 5/6	100					Silt loam	
16-20	5YR 6/6	100					Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery County Sampling Date: 6/6/19
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 23P-WET
Investigator(s): WT RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 15-25
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.026588 Long: -77.111670 Datum: WGS83
Soil Map Unit Name: Blocktown channery silt loam, 15 to 25 percent slopes (116D) NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	Is the Sampled Area within a Wetland? Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
23P is a depressional area northwest of 23S.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 1"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
23P receives hydrology from runoff from adjacent uplands and a spring seep

Photos: 23P-WET_South, 23P-UPL_South

Flags 23P (1-10)

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 23P-WET

Tree Stratum (Plot size: [redacted] 10ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	Yes	FAC
2. Fraxinus pennsylvanica	15	Yes	FACW
3. Liriodendron tulipifera	10	No	FACU
4. Acer negundo	10	No	FAC
5.			
6.			
	65	= Total Cover	
50% of total cover: 32.5	20% of total cover: 13		
Sapling Stratum (Plot size: [redacted] 10ft)			
1. Acer rubrum	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: [redacted] 10ft)			
1. Lindera benzoin	15	Yes	FAC
2. Dierevilla lonicera	10	Yes	UPL
3.			
4.			
5.			
6.			
	25	= Total Cover	
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: [redacted] 10ft)			
1. Arisaema triphyllum	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		
Woody Vine Stratum (Plot size: [redacted] 10ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Plot size down to 10ft due to small, linear size of wetland

SOIL

Sampling Point: 23P-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					silty clay loam	
6-16	10YR 4/2	85	10YR 4/6	15	C	M	silty clay loam	
16-26	10YR 4/2	70	10YR 4/6	30	C	M	silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.1 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Walking trail, residential road Distance to nearest roadway or other development 35ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23P

Latitude 39.026588 Longitude -77.111670

Prepared by: RS Date 6/25/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	Yes			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	Yes			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Final

Final

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 23Q	**Stream Order:** 1st
Date: 4/30/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT, NC	**County:** Montgomery	**Last Flag Number:** 236 (1-4A) (1-4B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Drains Northeast into 23R.

Hydrologic Connectivity –	Upstream: Culverted	Downstream: [redacted]	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)* 23R

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 15'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6'	☒ Cobbles	☒ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderately Undercut	☒ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ <4:1			

Notes: Stream restoration upper extent. Base Flow @ time of Investigation

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: April Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	[redacted]	○	○	☒	○	○	○	○
○ Light rain	☒ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lane Study		Feature ID: 23R	Stream Order: 1st
Date: 4/30/18	State: MD	Photos: upstream, downstream	
Crew: WT, NL	County: Montgomery	Last Flag Number: 23R(1-42A) 23R(1-42B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Drains north into Rock Creek, base flow observed Mapped Use I waterway

Hydrologic Connectivity –	Upstream: Culvert under 270	Downstream: Outside study area	Adjacent/Abutting: 23Q

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 15'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 8'	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Severe	☒ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: April Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	☒	○	○	○	○
○ Light rain	☒ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I270/I495 Managed Lane Study		Feature ID: 235	Stream Order: 1st
Date: 4/30/18	State: MD	Photos: Upstream, downstream	
Crew: WT, NL	County: Montgomery	Last Flag Number: 235(1-13A)(1-13B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit

Hydrologic Connectivity –	Upstream: Culvert	Downstream: 23G	Adjacent/Abutting: wetland 23P

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 8'	☐ Silts	☐ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 2'	☒ Cobbles	☒ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: SEVERE/MODERATE	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Rip Rap Placed in upper portion of Channel

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: April Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	●	○	○	☒	○	○	○	○
○ Light rain	☒ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 2270 I495 Managed Lanes Study		Feature ID: 23T	Stream Order: 1st
Date: 4/30/18	State: MD	Photos: upstream, downstream	
Crew: WT, NL	County: Montgomery	Last Flag Number: 23T (I-2A)(I-2B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ☒ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Defined bed and banks, flowing at time of visit

Hydrologic Connectivity –	Upstream: [redacted] N/A	Downstream: 23G	Adjacent/Abutting: [redacted] N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 2'	☒ Silts	☐ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 1'	☒ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Forested
☐ Other:	Minor, Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1				

Notes: Drains into [redacted] 23G

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
☒ No rain	○ 0-0.5
○ Light rain	☒ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI Month: April Year: 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	○	○	○	○	●	○	○	☒	○	○	○	○
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-270/I-495 MANAGED LANE STUDY		Feature ID: 23U	Stream Order: 1st
Date: 5/1/18	State: MD	Photos: Upstream / Downstream	
Crew: WT, RS	County: Montgomery	Last Flag Number: 23U (1-2A) (1-2B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: INTERMITTENT CHANNEL ONGINATING @ CULVERT AT I-270 AND DRAINS TO 23N

Hydrologic Connectivity –	Upstream: CULVERT	Downstream: 23N	Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 6'	☐ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1'	☒ Cobbles	☒ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: No erosion; stable	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
☒ No rain	● 0-0.5
○ Light rain	☒ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI Month: April Year: 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	○	○	○	○	●	○	○	☒	○	○	○	○
Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified 5/16/18 RS

Segment 23 Map 33

Rename to 23V

Waters of the U.S. Data Sheet

Project: I-270 ICM		**Feature ID:** SB2NB01-D	**Stream Order:** 1
Date: 6-29-2017 5/16/18	**State:** MD	**Photos:** 9224-9225	Upstream, downstream
Crew: MBS/MH / RS RC	**County:** MoCo	**Last Flag Number:** 3A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing very slowly to W during SAR investigation from stormwater outfall			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: PIPE	Downstream: PIPE	Adjacent/Abutting: NA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-8'	☒ Silts	☐ Sands	☐ Muck	RB: forest
☐ Artificial (man-made)	Depth: 1"	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes: Rip-rap lined channel, hydrogen-sulfide odor					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: JUNE Year: 2017 June 2018
⊗ No rain	○ 0-0.5	○ ○ ○ ○ ⊗ ○ ○ ⊗ ○ ○ ○ ○ ○	
○ Light rain	○ 0.5-1	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6	
○ Heavy Rain	⊗ >1	Severe Drought / Moderate Drought / Normal / 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		
☒ 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/debris	☒ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Final

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery County Sampling Date: 5/23/12
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 23W-UPL
Investigator(s): PS RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 8-15
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.022184 Long: -77.141384 Datum: NAD83
Soil Map Unit Name: Gaila silt loam, 8 to 15 percent slopes (1C) NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:
23W-UPL is a Forested Upland located north of 23W.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [ ] No [✓] Depth (inches): _____
Water Table Present? Yes [ ] No [✓] Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes [ ] No [✓] Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No wetland hydrology observed

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23W-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Shag bark hickory	40	Yes	FACU
2. N. Red oak	15	Yes	FACU
3. White oak	15	Yes	FACU
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. Lonicera japonica	20	Yes	FACU
2. Parthenocissus quinquefolia	10	Yes	FACU
3. Toxicodendron radicans	10	Yes	FAC
4. Diervilla lonicera	5	No	UPL
5. Smilax rotundifolia	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23W-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					SiH loam	
2-20	10YR 5/6	100					Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery County Sampling Date: 5/23/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 23W-WET
Investigator(s): PS RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.022032 Long: -77.141669 Datum: NAD83
Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes NWI classification: PEMIA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☑ Soil ☑, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
The center of 23W was heavily disturbed during construction activity. Vegetation has started to return. 23W-WET was done outside of the heavily disturbed area. (See photos)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches): 1"
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
23W receives hydrology from runoff from adjacent uplands.
Adjacent to 23A

Flags: Existing polygon, no changes

Photos: 23W-WET_East
23W-WET_Northeast
23W-WET_South
23W-UPL_North

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 23W-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	15	Yes	FACW
2. Diospyros virginiana	15	Yes	FAC
3. Fraxinus pennsylvanica	5	Yes	FACW
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: 12.5 20% of total cover: 5

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30 ft)			
1. Phalaris arundinacea	50	Yes	FACW
2. Carex stricta	20	Yes	OBL
3. Juncus effusus	15	No	FACW
4. Peltandra virginica	10	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 23W-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2						Silt loam	Saturated
6-20	10YR 5/2	80	5YR 5/6	20	C	M	Clay loam	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.32 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use I-270, Forested upland Distance to nearest roadway or other development 43ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23W

Latitude 39.022032 Longitude -77.141669

Prepared by: RS Date 6/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	Yes			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	Yes			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	NO			
Other				

Notes: Center of wetland heavily disturbed, emergent vegetation returning

* Refer to backup list of numbered considerations.

WT, NL
Verified 6/4/18

Map 28
Sec 23

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 270 City/County: Montgomery Sampling Date: 8/5/15
Applicant/Owner: SHA State: MD Sampling Point: ~~WP001~~-WET 23X-WET
Investigator(s): RS, WT Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Toe-of-slope Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): 147 Lat: 39-02-13.4 Long: 77-08-44.3 Datum:
Soil Map Unit Name: Hatboro silt loam (54A) NWI classification: PEM1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland?	Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____		

Remarks:
~~WP001~~ 23X is located south of Tuckerman Lane and West of I-270. Wetland is in good condition with some trash. 23X functions as toxicant removal and flood control. Wetland abuts an unnamed tributary of Old Farm Creek, a tributary to Cabin John Creek and Potomac River, a TNW.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____ No ✓	Depth (inches): ____	
Water Table Present?	Yes ____ No ✓	Depth (inches): ____	
Saturation Present? (includes capillary fringe)	Yes ____ No ✓	Depth (inches): ____	Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
~~WP001~~ 23X receives hydrology from ~~WL007B~~ 23J and runoff from adjacent school bus parking lot.

Flagging: ~~WP001~~ 23X-001 to ~~WP001~~ 23X-010

Photos: 23X_Wetland_NW
23X_Wetland_SW

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: 23X ~~WP001~~ WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	yes	FAC
2. *Platanus occidentalis*	20	yes	FACW
3. *Ulmus rubra*	5	no	FAC
4. *Crataegus sp.*	5	no	NI
5.			
6.			
7.			
8.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. *Fraxinus pennsylvanica*	5	yes	FACW
2. *Acer rubrum*	5	yes	FAC
3. *Lindera benzoin*	5	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15	= Total Cover	
Herb Stratum (Plot size: 30 ft)			
1. *Symplocarpus foetidus*	40	yes	OBL
2. *Parthenocissus quinquefolia*	30	yes	FACU
3. *Toxicodendron radicans*	5	no	FAC
4. *Microstegium vimineum*	2	no	FAC
5. *Lonicera japonica*	5	no	FAC
6. *cicuta maculata*	10	no	OBL
7. *Smilax rotundifolia*	2	no	FAC
8.			
9.			
10.			
11.			
12.			
	94	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1. *Vitis labrusca*	5	yes	FACU
2.			
3.			
4.			
5.			
6.			
	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

23X

SOIL

Sampling Point: ~~WP061~~-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	90	10YR 5/4	10	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 12"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Bus depot parking lot, I-270 Distance to nearest roadway or other development 35ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 23X

Latitude 39.037170 Longitude -77.145714

Prepared by: BS Date 6/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study | Feature ID: 23Z | Stream Order: 1st
Date: 8/27/18 | State: MD | Photos: Upstream / Downstream
Crew: WT, RS | County: Montgomery | Last Flag Number: 23Z-4A, 23Z-4B

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Base flow observed at time of field investigation.

Hydrologic Connectivity – Upstream: | Downstream: 23E | Adjacent/Abutting: None

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 8'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 2'	☐ Cobbles	☐ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate Erosion	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ >1:1 ☒ 2:1 ☐ 3:1 ☐ <4:1			

Notes: Drains from Post Office Parking lot

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
☒ No rain	○ 0-0.5
○ Light rain	○ 0.5-1
○ Heavy Rain	☒ >1

Monthly Drought Condition
NCDC Regional PDSI
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.php
Month: August Year: 2018

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
			Severe Drought		Moderate Drought		Normal		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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Verified
NL 3/28/18

Sec 24
Map 25

Stream Datasheet

Project: 270
Stream ID: ~~WL007~~ 24A
Stream Name: Old Farm Creek

Date: 8/4/15
Investigators: RS, WT

Use (I-IV): I-P
Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW
Flow: ☒ Perennial ☐ Intermittent ☐ Ephemeral
If ephemeral, provide justification for flagging: N/A

Direction of flow: South - 24A
Gradient (%): 1
Connection to TNW: ~~WL007~~ is Old Farm Creek, which flows into Cabin John Creek, which flows into the Chesapeake & Ohio Canal, which flows into the Potomac River, which is a TNW.

Avg. Width (Top of Bank): 20'
Avg. Depth (Top of Bank): 1.5'
Avg. Water Depth: 6"
Avg. Slope of Banks (°): LB 20 RB 20
Has stream been altered? If so, how: 24A ~~WL007~~ is culverted at the upstream extent and there is construction taking place on the right bank.

Common Substrate:
☐ Bedrock ☒ Cobble/Gravel ☐ Concrete ☒ Sand ☒ Silt
☐ Other:

Habitat Complexity:
☒ Riffles/pools ☒ Undercut Banks ☒ Tree Roots ☐ Woody Debris
Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor
Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor
Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:
RB: ☒ Forested ☒ Shrub ☒ Herb. ☐ Wetlands ☐ Developed ☒ Maintained
LB: ☒ Forested ☒ Shrub ☒ Herb. ☐ Wetlands ☐ Developed ☐ Maintained

Flags:
~~WL007-001 to WL007-006~~ 24A(1-10A)(1-10B) *23J flows into 24A
Additional Notes:
Photos: ~~US-N, DS-S~~ : upstream, downstream
Stream restoration efforts have taken place since previous survey
↳Bank stabilization and weir installation

Take upstream and downstream photos.

Verified
WT 3/29/18

sec 24
Map 28

Stream Datasheet

Project: 270 Date: 8/4/15
Stream ID: ~~WL006~~ 24C Investigators: RS, WT
Stream Name: Unnamed tributary to Cabin John Creek

Use (I-IV): I
Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW
Flow: ☒ Perennial ☒ Intermittent ☐ Ephemeral
If ephemeral, provide justification for flagging: N/A

Direction of flow: Southwest 24C Gradient (%): 1
Connection to TNW: ~~WL006~~ flows into Cabin John Creek, which flows into the Chesapeake & Ohio Canal, which flows into the Potomac River, which is a TNW.

Avg. Width (Top of Bank): 3.5' Avg. Depth (Top of Bank): 5"
Avg. Water Depth: 3" 24C Avg. Slope of Banks (°): LB 25 RB 40
Has stream been altered? If so, how: ~~WL006~~ is culverted at the upstream extent.

Common Substrate:
☐ Bedrock ☒ Cobble/Gravel ☐ Concrete ☒ Sand ☒ Silt
☐ Other:

Habitat Complexity:
☒ Riffles/pools ☒ Undercut Banks ☒ Tree Roots ☒ Woody Debris
Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor
Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor
Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:

RB:	☒ Forested	☒ Shrub	☒ Herb.	☐ Wetlands	☐ Developed	☐ Maintained
LB:	☒ Forested	☒ Shrub	☒ Herb.	☐ Wetlands	☐ Developed	☐ Maintained

Flags:
~~WL006-001 to WL006-004~~ 24C(1-6A) (1-6B)
Additional Notes:
Photos: ~~US-NE, DS-SW~~
Upstream, Downstream

Take upstream and downstream photos.

VERIFIED WT 3/29/18

Sec 24 Map 25

Stream Datasheet

Project: 270 Date: 8/4/15

Stream ID: ~~WL005~~ 24D Investigators: RS, WT

Stream Name: Unnamed tributary to Cabin John Creek

Use (I-IV): I

Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW

Flow: ☒ Perennial ☐ Intermittent ☐ Ephemeral

If ephemeral, provide justification for flagging: N/A

Direction of flow: ~~Northwest~~ 24D WEST Gradient (%): 1

Connection to TNW: ~~WL005~~ flows into Cabin John Creek, which flows into the Chesapeake & Ohio Canal, which flows into the Potomac River, which is a TNW.

Avg. Width (Top of Bank): 3' Avg. Depth (Top of Bank): 6"

Avg. Water Depth: 4" Avg. Slope of Banks (°): LB 10 RB 10

Has stream been altered? If so, how: N/A

Common Substrate:

☐ Bedrock ☒ Cobble/Gravel ☐ Concrete ☒ Sand ☒ Silt

☒ Other: Rip Rap

Habitat Complexity:

☒ Riffles/pools ☐ Undercut Banks ☐ Tree Roots ☒ Woody Debris

Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor

Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor

Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:

RB:	☐ Forested	☐ Shrub	☒ Herb.	☐ Wetlands	☐ Developed	☐ Maintained
LB:	☒ Forested	☒ Shrub	☒ Herb.	☐ Wetlands	☐ Developed	☐ Maintained

Flags:

~~WL005-001 to WL005-005~~ 24D(1-7A)(1-7B) Adjacent to 24Q

Additional Notes:

Photos: ~~US-SE, DS-NW~~

Upstream, Downstream

Take upstream and downstream photos.

Verified WT 3/29/18

Map 25 Sec 24

Stream Datasheet

Project: 270 Date: 8/4/15

Stream ID: ~~WL003~~ 24F (WUS 14) Investigators: RS, WT

Stream Name: Cabin John Creek

~~Southeast~~ Downstream side of 270

Use (I-IV): I-P

Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW

Flow: ☒ Perennial ☐ Intermittent ☐ Ephemeral

If ephemeral, provide justification for flagging: N/A

Direction of flow: North 24F Gradient (%): 1

Connection to TNW: ~~WL003~~ is Cabin John Creek, which flows into the Chesapeake & Ohio Canal, which flows into the Potomac River, which is a TNW.

Avg. Width (Top of Bank): 15' Avg. Depth (Top of Bank): 10"

Avg. Water Depth: 6" Avg. Slope of Banks (°): LB 15 RB 35

Has stream been altered? If so, how: 24F ~~WL003~~ is culverted at the upstream extent.

Common Substrate:

☐ Bedrock ☒ Cobble/Gravel ☐ Concrete ☒ Sand ☒ Silt

☐ Other:

Habitat Complexity:

☒ Riffles/pools ☐ Undercut Banks ☐ Tree Roots ☐ Woody Debris

Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor

Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor

Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:

RB: ☒ Forested ☒ Shrub ☒ Herb. ☐ Wetlands ☐ Developed ☐ Maintained

LB: ☒ Forested ☒ Shrub ☒ Herb. ☐ Wetlands ☐ Developed ☐ Maintained

Flags:

~~WL003-001 to WL003-004~~ 24F(1-48A) (1-48B)

Located downstream of 24D and 24K Adjacent to 24L and 24R

Additional Notes:

Photos: ~~US-S, DS-N~~

Upstream, downstream

Take upstream and downstream photos.

VERIFIED
WT 3/29/18

Sec 24
Map 23

Stream Datasheet

Project: 270 Date: 8/4/15
Stream ID: ~~WL001~~ 24H (WUS 15) Investigators: RS, WT
Stream Name: Unnamed tributary to Bogley Branch

Use (I-IV): I
Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW
Flow: ☒ Perennial ☐ Intermittent ☐ Ephemeral
If ephemeral, provide justification for flagging: N/A

Direction of flow: South 24H Gradient (%): 2
Connection to TNW: ~~WL001~~ flows into Bogley Branch, which flows into Cabin John Creek, which flows into the Chesapeake & Ohio Canal, which flows into the Potomac River, which is a TNW.

Avg. Width (Top of Bank): 5' Avg. Depth (Top of Bank): 1.5'
Avg. Water Depth: 1" 24H Avg. Slope of Banks (°): LB 20 RB 35
Has stream been altered? If so, how: ~~WL001~~ is culverted at the upstream extent.

Common Substrate:
☐ Bedrock ☒ Cobble/Gravel ☐ Concrete ☒ Sand ☒ Silt
☐ Other:

Habitat Complexity:
☒ Riffles/pools ☒ Undercut Banks ☒ Tree Roots ☒ Woody Debris
Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor
Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor
Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:

RB:	☒ Forested	☒ Shrub	☒ Herb.	☒ Wetlands	☐ Developed	☐ Maintained
LB:	☒ Forested	☒ Shrub	☒ Herb.	☒ Wetlands	☐ Developed	☐ Maintained

Flags:
~~WL001-001 to WL001-022~~ 24H(1-4A)(1-4B)
Additional Notes:
Photos: ~~US-N, DS-S~~
Upstream, downstream

Take upstream and downstream photos.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 24J	**Stream Order:** 3rd
Date: 3-29-18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: W. Twupack, S. Thuder	**County:** Montgomery	**Last Flag Number:** 24J (1A-13A) (1B-14B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: BASE Flow observed during Site Investigation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Piped	Downstream: Cabin John Creek ↳ Flows beyond study area	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 14'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	Moderate	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Stream Piped under Montrose Road. Stream is Bogley Branch USE I-P

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php								Month: March		Year: 2018			
●	No rain	○	0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○	
○	Light rain	●	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lanes Study		**Feature ID:** 24K	**Stream Order:** 1st
Date: 3/29/18	**State:** MD	**Photos:** 24K upstream/downstream	
Crew: Nicole Lindsey, Barb Willing	**County:** Montgomery	**Last Flag Number:** 24K-5 (1A-5A), (1B-5B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Water flow observed during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Upland	Downstream: Drains to 24F	Adjacent/Abutting: Upland

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 3'	☑ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability: Good	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			
Notes: Rip rap at confluence with 24F					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php)	Month: March	Year: 18

● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○	○
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495 / I-270 Managed Lanes Study		**Feature ID:** 24L	**Stream Order:** 1st
Date: 3/29/18	**State:** MD	**Photos:** 24L upstream / downstream	
Crew: Nicole Lindsey, Barb Willing	**County:** Montgomery	**Last Flag Number:** 24L (1-14A)(1-14B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Minimal water flow observed during site visit			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 24B	Downstream: Drains to 24F	Adjacent/Abutting: upland

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 1-2'	☐ Silts	☑ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1-2"	☐ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☑ ≤4:1			
Notes: Recieves flow from wetland upstream					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php)	Month: March	Year: 18

● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○	
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery Sampling Date: 5/15/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 24M-WET
Investigator(s): RS, NL Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.038809 Long: -77.144770 Datum: NAD83
Soil Map Unit Name: Hatboro silt loam, 0 to 3 percent slopes (54A) NWI classification: PEMIH
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
24M is located north of 24A. A stream restoration access road is directly south of wetland and filter log surrounds 24M. Wetland appears to be artificially constructed. Data point taken on edge of wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 12" estimate
Water Table Present? Yes ☑ No ☐ Depth (inches): 0"
Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
24M receives hydrology from runoff from adjacent uplands

Flagged as 24X in field

Photos: 24M-WET_N
24M-WET_N2

Based on previous aerial imagery, wetland used to be part of a gravel access road in 2015

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 24M-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 30 ft)			
1. Acer rubrum	5	Y	FAC
2. Platanus occidentalis	5	Y	FACW
3. Betula nigra	5	Y	FACW
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5 20% of total cover: 3			
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 30 ft)			
1. Typha latifolia	30	Y	OBL
2. Phalaris arundinacea	25	Y	FACW
3. Juncus effusus	10	N	FACW
4. Carex lurida	10	N	OBL
5. Poa palustris	10	N	FACW
6. Juncus tenuis	5	N	FAC
7. Iris pseudacorus	5	N	OBL
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5 20% of total cover: 19			
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
All saplings are tree plantings along access road but located w/ in wetland

SOIL

Sampling Point: 24m-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Sandy clay loam	
6-10	10YR 4/2	90	10YR 4/6	10	C	M	Clay loam	
10-26	10YR 3/2	75	10YR 4/6	20	C	M	Silty clay	
			10YR 2/2	5	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.06Ac Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Access Road, Forest Distance to nearest roadway or other development 28 Ft

Dominant wetland systems present PEM1H Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? —

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 24M

Latitude 39.038809 Longitude -77.144770

Prepared by: BS Date 5/15/18

Wetland Impact: Type NA Area NA

Evaluation based on: Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	N			
Fish and Shellfish Habitat	Y			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	Y			
Recreation	N			
Educational/Scientific Value	Y			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	Y			
ES Endangered Species Habitat	N			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270/I-495 Managed Lanes study City/County: Montgomery Sampling Date: 5/30/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 24N, A-UPL
Investigator(s): NL, BM Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0493 Long: -77.1523 Datum: NAD83
Soil Map Unit Name: Blocktown channery silt loam, 15-25 slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	Yes ☐	No ☑
Hydric Soil Present?	Yes ☐	No ☑			
Wetland Hydrology Present?	Yes ☐	No ☑			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
Water Table Present? Yes ☐ No ☒ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology observed

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 24N, P, Q UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30 ft)			
1. Microstegium vimineum	50	Y	FAC
2. Vitis labrusca	10	N	FACU
3. Toxicodendron radicans	10	N	FAC
4. Asclepias incarnata	20	Y	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 24N, P, Q UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	5Y 2.5/1	100					Silt Loam	
2-20	7.5YR 5/6	90	5YR 4/6	10	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Disturbed Soils

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495 / I-270 Managed Lanes study City/County: Montgomery Sampling Date: 5/30/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 24N-WET
Investigator(s): NL, BM Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0493 Long: -77.1525 Datum: NAD83
Soil Map Unit Name: Glenville silt loam, 3-8 percent slopes NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
24N is located adjacent to hiking trail at toe of slope of I-270 embankment.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____
Water Table Present? Yes ☐ No ☑ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Receives hydrology from surface runoff and adj.

Flags: 24N(1-16)

Photo: 24N-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 24N - WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	10	Y	FAC
2. Ulmus americana	30	Y	FACW
3. Carya cordiformis	5	N	FACU
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 30 ft)			
1. Lindera benzoin	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size: 30 ft)			
1. Microstegium vimineum	70	Y	FAC
2. Toxicodendron radicans	5	N	FAC
3. Arisaema triphyllum	5	N	FACW
4. Lindera benzoin	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		

Woody Vine Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 24N-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	5Y 2.5/1	100					Silt Loam	
2-6	10YR 2/1	90	5YR 3/4	10	C	M	Silt Loam	
6-20	10YR 5/1	90	7.5YR 4/6	10	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 6.3 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Upland forest, I-270 Distance to nearest roadway or other development 106 ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 24N

Latitude 39.0493 Longitude -77.1525

Prepared by: RS Date 6/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 24P	**Stream Order:** 1st
Date: 6/28/18	**State:** MD	**Photos:** Upstream/Downstream	
Crew: WT, PS	**County:** Montgomery	**Last Flag Number:** 24P(1-4A)(1-4B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ⊗ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Defined Bed/Banks

Hydrologic Connectivity –	Upstream: 24N (PFO)	Downstream: Cabin John Branch ↳ Outside of study area	Adjacent/Abutting: 24N

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4'	☐ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	None/Good stability	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Drains west into Cabin John Branch (use I-P)

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: May Year: 2018												
● No rain	⊗ 0-0.5	○	○	○	○	○	●	○	⊗	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Montgomery Sampling Date: 5/30/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 24Q-WET
Investigator(s): NL, BM Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.049 Long: -77.1522 Datum: NAD83
Soil Map Unit Name: Glenville silt loam, 3-8 percent slopes NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
Depressional wetland at toe of slope adjacent to 24D.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):
Water Table Present?	Yes ☐	No ☑	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 8"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Receives hydrology from floodflow and surface runoff.

Flags: 24Q(1-7)

Photo: 24Q-WET
24N-Q-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 24Q - WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Acer rubrum	30	Y	FAC
2. Platanus occidentalis	10	Y	FACW
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. Lindera benzoin	20	Y	FAC
2. Microstegium vimineum	40	Y	FAC
3. Toxicodendron radicans	15	N	FAC
4. Arisaema triphyllum	5	N	FACW
5. Parthenocissus quinquefolia	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 21Q - UPT

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	88	7.5YR 3/4	12	C	M	Silt Loam	
8-20	10YR 5/1	85	10YR 4/1	5	D	M	Silt Loam	
			7.5YR 4/6	5	C	M		
			7.5YR 6/8	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.04Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Upland Forest, I-270 Distance to nearest roadway or other development 70ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 24Q

Latitude 39.049 Longitude -77.1522

Prepared by: RS Date 6/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	NO			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	No			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	No			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Montgomery Sampling Date: 6/4/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 24R-UPL
Investigator(s): WT, NL Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR or MLRA): LRRS MLRA 148 Lat: 39.055134 Long: -77.150986 Datum: NAD83
Soil Map Unit Name: Blocktown Channery silt loam, 15-25% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:
Forested upland EAST of 24R

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
Water Table Present? Yes ☐ No ☒ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 24R-UPU

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Platanus occidentalis	40	Y	FACW
2. Liriodendron tulipifera	20	Y	FACU
3. Ulmus americana	10	N	FACW
4. Acer rubrum	10	N	FAC
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	10	Y	FACW
2. Morus alba	10	Y	UPL
3. Acer rubrum	10	Y	FAC
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Shrub Stratum (Plot size: 30 ft)			
1. Lonicera tatarica	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30 ft)			
1. Lonicera japonica	10	Y	FACU
2. Parthenocissus virginiana	5	N	FACU
3. Microstegium vimineum	20	Y	FAC
4. Alliaria petiolata	5	N	FACU
5. Arisaema triphyllum	5	N	FACW
6. Rubus phoenicolasius	10	Y	FACU
7. Glechoma hederacea	5	N	FACU
8.			
9.			
10.			
11.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 30 ft)			
1. Vitis labrusca	8	Y	FACU
2.			
3.			
4.			
5.			
	8 = Total Cover		
50% of total cover: 4	20% of total cover: 1.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 24R-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					Silt Loam	
2-5	10YR 4/4	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock / Fill material

Depth (inches): 5"

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Significant concrete and asphalt observed

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-495/I-270 Managed Lanes Study City/County: Montgomery Sampling Date: 6/4/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 24R-WET
Investigator(s): WT, NC Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Toe-of-slope; depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.055189 Long: -77.150972 Datum: NAD83
Soil Map Unit Name: Hatboro silt loam, 0-3 percent slopes NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: PFO wetland adjacent to 24F and 24L.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):
Water Table Present?	Yes ☑	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

24R receives hydrology from 24S and 24F. 24S flows directly into wetland from north

Flags: 24R(1-34)

Photos: 24R_Wetland_NE
24R_Wetland_North
24R_Wetland_South
24R_Upland_East

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 24R-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2. Fraxinus pennsylvanica	5	N	FACW
3. Betula nigra	5	N	FACW
4. Quercus palustris	5	N	FACW
5.			
6.			
	35	= Total Cover	

50% of total cover: 17.5 20% of total cover: 7

Sapling Stratum (Plot size: 30 ft)			
1. Quercus palustris	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Shrub Stratum (Plot size: 30 ft)			
1. Lindera benzoin	15	Y	FAC
2. Rosa multiflora	5	Y	FAC
3.			
4.			
5.			
6.			
	20	= Total Cover	

50% of total cover: 10 20% of total cover: 4

Herb Stratum (Plot size: 30 ft)			
1. Microstegium vimineum	30	Y	FAC
2. Leersia oryzoides	30	Y	OBL
3. Peltandra virginica	10	N	OBL
4. Boehmeria cylindrica	5	N	FACW
5. Arisaema triphyllum	5	N	FACW
6. Dichanthelium clandestinum	5	N	FAC
7. Juncus effusus	3	N	FACW
8. Toxicodendron radicans	2	N	FAC
9. Alliaria petiolata	2	N	FACU
10.			
11.			
	92	= Total Cover	

50% of total cover: 46 20% of total cover: 18.4

Woody Vine Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	10	Y	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 24R-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					Silt Loam	saturated
3-9	10YR 5/1	70	7.5YR 5/6	30	C	M	Silt Loam	
9-20	10YR 6/2	85	5YR 5/6	15	C	M	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 1.3 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest, Cabin John Creek Distance to nearest roadway or other development 300ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 24 R

Latitude 39.054795 Longitude -77.151137

Prepared by: RS, WT Date 6/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	7		
Floodflow Alteration	Yes	1, 2, 5, 6, 7, 8, 9, 10, 13, 18	X	Adjacent to Cabin John Creek
Fish and Shellfish Habitat	Yes	4, 5, 8, 14, 17		
Sediment/Toxicant Retention	Yes	3, 4, 5, 6, 9, 10, 11, 12, 14, 15, 16	X	
Nutrient Removal	Yes	3, 4, 5, 6, 8, 9, 10, 11, 12, 14		
Production Export	Yes	1, 2, 4, 5, 7, 8, 10, 12,		
Sediment/Shoreline Stabilization	Yes	1, 2, 3, 5, 7, 14, 15,		
Wildlife Habitat	Yes	3, 4, 5, 8, 9, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21	X	
Recreation	Yes	1, 4, 5, 7, 12,		
Educational/Scientific Value	Yes	2, 5, 6, 11,		
Uniqueness/Heritage	Yes	5, 6, 7, 11, 15, 16, 17, 19, 22, 27, 30	X	Located off of Montrose Rd
Visual Quality/Aesthetics	Yes	3, 4, 5, 8, 9, 12		
ES Endangered Species Habitat	No			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 245	**Stream Order:** 1st
Date: 6/4/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT, NL	**County:** Montgomery	**Last Flag Number:** 24(1-2A)(1-23)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ● Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Base flow observed during field investigation

Hydrologic Connectivity –	Upstream: Pipe @ Montrose Rd	Downstream: 24R	Adjacent/Abutting: 24R

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☒ Artificial (man-made)	Depth: 4'	☐ Cobbles	☒ Gravel	☒ Other: R.D Rap	
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderate Erosion	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: Stream Drains into 24R. Channel looses definition within wetland

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
● No rain	○ 0-0.5
○ Light rain	● 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php **Month:** June **Year:** 18

○	○	○	○	○	○	○	○	○	●	○	○	○	○	○
-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I270/I95 Managed Lane Study		**Feature ID:** 24T	**Stream Order:** I
Date: 11/14/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: SH RB	**County:** Montgomery	**Last Flag Number:** 24T (1-8A) (1-8B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of visit with average depth of 4".			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Out of study area	Downstream: 24U	Adjacent/Abutting: 24N

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 6'		☒ Silts	☒ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 4'		☒ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: moderately incised		☐ Bedrock	☐ Concrete			LB: Forested
☐ Other:			Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1				
Notes:							

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php								Month: November		Year: 2018		
✓	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	○	✓	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	Heavy Rain	✓	>1	Severe Drought			Moderate Drought		Normal			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			
✓ 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/debris	✓ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I 270/I 495 Managed Lane Study		Feature ID: 24U	Stream Order: 1
Date: 11/14/18	State: MD	Photos: Upstream, Downstream	
Crew: RS SH	County: Montgomery	Last Flag Number: 24U-004a, 24U-002a	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊘ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Flowing at time of visit with average depth of 6"-12".

Hydrologic Connectivity – Upstream: Out of study area Downstream: Out of study area Adjacent/Abutting: Z4T

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 20'	☒ Silts	☑ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 4'	☒ Cobbles	☑ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete			LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: November Year: 2018												
⊘ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	○	○	⊘	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊘ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☒ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☒ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 25A	**Stream Order:** 1st
Date: 5/2/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT, NC	**County:** Montgomery	**Last Flag Number:** No changes to feature	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Drains west into Cabin John Creek USE I-P

Hydrologic Connectivity –	Upstream: Culverted under Tower Oaks Blvd.	Downstream: Cabin John Creek 24F	Adjacent/Abutting: 25B

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 8'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 4'	☐ Cobbles	☐ Gravel	☒ Other: Rip Rap	
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Forest Scrub-shrub
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes:

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: April Year: 2018												
⊗ No rain	■ 0-0.5	○	○	○	○	○	■	○	○	⊗	○	○	○	○
○ Light rain	⊗ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Previously WUS13

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270/I-495 Managed Lane Study City/County: Montgomery Sampling Date: 5/2/18
Applicant/Owner: SHA State: MD Sampling Point: 25B-WET
Investigator(s): WT, NC Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.056746 Long: -77.151444 Datum: NAD83
Soil Map Unit Name: Hatboro silt loam 0 to 3 percent slopes (54A) NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
PFO clothing 24F and 25A

Previously PFO 04

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [X] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 1/2
Water Table Present?	Yes [ ]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [ ]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area receives sheetflow runoff from adjacent wooded uplands and from periodic flooding

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 25B WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Acer rubrum	40	Y	FAC
2. Quercus palustris	20	Y	FACW
3. Acer saccharinum	20	Y	FACW
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 30 ft)			
1. Acer rubrum	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Shrub Stratum (Plot size: 30 ft)			
1. Lindera benzoin	20	Y	FAC
2. Berberis thunbergii	5	Y	FACU
3.			
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 30 ft)			
1. Microstegium vimineum	45	Y	FAC
2. Onoclea sensibilis	25	Y	FACW
3. Claytonia virginica	10	N	FAC
4. Toxicodendron radicans	5	N	FAC
5. Juncus effusus	2	N	FACW
6. Arisaema triphyllum	2	N	FACW
7. Smilax rotundifolia	2	N	FAC
8.			
9.			
10.			
11.			
	91 = Total Cover		
50% of total cover: 45.5	20% of total cover: 18.2		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation in herbaceous layer mostly down

SOIL

Sampling Point: 25B-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	93	10YR 5/6	5	C	M	Silt loam	
			10YR 3/2	2	D	M		
4-7	10YR 5/2	90	10YR 5/6	10	C	M	Silt loam	
7-20	10YR 6/2	80	10YR 5/6	20	C	M	Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.07 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forest Distance to nearest roadway or other development 70'

Dominant wetland systems present PFO/A Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper portion

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 25B

Latitude 39.056746 Longitude -77.151444

Prepared by: WT Date 5/2/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	—			

Notes: WETLAND System Drains to 24A

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 25C	**Stream Order:** 1st
Date: 5/2/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT, WC	**County:** Montgomery	**Last Flag Number:** No changes to feature	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	✓ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Drains east into Cabin John Creek			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Rip Rap/Culvert	Downstream: Cabin John Creek	Adjacent/Abutting: 25D 24F

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 8'		☒ Silts	☐ Sands	☐ Muck		RB: Forested
☐ Artificial (man-made)	Depth: 4'		☒ Cobbles	☐ Gravel	☒ Other:	Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete			LB: Forested
☐ Other:	Severe		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1				

Notes: Base Flow @ time of Investigation, Rip Rap in upper extent

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
☒ No rain	☒ 0-0.5
○ Light rain	○ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI Month: April Year: 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

○	○	○	○	○	●	○	○	☒	○	○	○	○
-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community	
	☐ Leaf litter disturbed	☐ Presence of wrack line	☒ Other: Exposed Roots	

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:

Notes:

Previously WWS14A

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lane Study City/County: Montgomery County Sampling Date: 8/22/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 25D-UPL
Investigator(s): WT, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 3-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.070292 Long: -77.159409 Datum: NAD83
Soil Map Unit Name: Glenelg silt loam (2B) NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:
25D-UPL is a forested upland located northeast of 25D-WET.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology observed.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 25D-UPL

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	50	Yes	FACU
2. Pinus virginiana	10	No	UPL
3.			
4.			
5.			
6.			
	60 = Total Cover		

50% of total cover: 30 20% of total cover: 12

Sapling Stratum (Plot size: 30 ft)			
1. Robinia pseudoacacia	20	Yes	FACU
2. Juniperus virginiana	10	Yes	FACU
3. Fraxinus pennsylvanica	5	No	FACW
4.			
5.			
6.			
	35 = Total Cover		

50% of total cover: 17.5 20% of total cover: 7

Shrub Stratum (Plot size: 30 ft)			
1. Diervilla lonicera	10	Yes	UPL
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 30 ft)			
1. Microstegium vimineum	15	Yes	FAC
2. Lonicera japonica	10	Yes	FACU
3. Vitis aestivalis	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		

50% of total cover: 15 20% of total cover: 6

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 25D-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/3	100					Silt loam	
5-20	5YR 5/6	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lane Study City/County: Montgomery County Sampling Date: 8/22/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 25D-WET
Investigator(s): WT, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.070067 Long: -77.159222 Datum: NAD83
Soil Map Unit Name: Glenelg silt loam (2B) NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?**	Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐		
Wetland Hydrology Present?	Yes ☑ No ☐		

Remarks:
25D is located north of 25H and east of I-270 northbound

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 2"
Water Table Present? Yes ☑ No ☐ Depth (inches): 0"
Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
25D receives hydrology from runoff from I-270 and adjacent uplands.

Flags: 25D (1-15)

Photos: 25D-WET_North
25D-UPL_West

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 25D-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nigra	60	Yes	FACW
2. Acer rubrum	20	Yes	FAC
3.			
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 30 ft)			
1. Acer rubrum	20	Yes	FAC
2. Platanus occidentalis	10	~~No~~ Yes	FACW
3. Diospyros virginiana	5	No	FAC
4.			
5.			
6.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Shrub Stratum (Plot size: 30 ft)			
1. Viburnum dentatum	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 30 ft)			
1. Juncus effusus	30	Yes	FACW
2. Dichanthelium clandestinum	15	Yes	FAC
3. Woodwardia areolata	10	No	FACW
4. Boehmeria cylindrica	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ~~6~~ 7 (A)

Total Number of Dominant Species Across All Strata: ~~6~~ 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 25D-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/2	95	10YR 5/4	5	C	M	Silt loam	Saturated
6-11	10YR 5/2	85	10YR 4/6	15	C	M	Silt loam	Saturated
11-20	10YR 6/1	70	7.5YR 5/6	30	C	M	Clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.3 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 80ft

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 25D

Latitude 39.070067 Longitude -77.159222

Prepared by: RS Date 8/24/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	Yes			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	Yes			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	Yes			
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	No			
ES Endangered Species Habitat	No			
Other				

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 25E	**Stream Order:** 1st
Date: 6/21/18	**State:** MD	**Photos:** 25E-Openwater_Southeast	
Crew: RS WT	**County:** Montgomery	**Last Flag Number:** N/A	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	◉ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Pooled water of unknown depth, flows out of riser structure. Waters is open water pond			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: Beyond study area	Downstream: 25H	Adjacent/Abutting: 25K

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 100'	☑ Silts	☑ Sands	☑ Muck	RB: Wetland
☑ Artificial (man-made)	Depth: NA	☐ Cobbles	☐ Gravel	☐ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Wetland
☐ Other:	Stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☑ 3:1 ☐ ≤4:1			
Notes: Size estimated from aerial, depth unknown					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: June	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	◉	○	○	○	○	○		
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 25F	**Stream Order:** 1st
Date: 8/22/18	**State:** MD	**Photos:** 25F Upstream, Downstream, Culvert	
Crew: WT, RS	**County:** Montgomery	**Last Flag Number:** 25F-11A, 25F-12A	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	☒ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Defined bed and banks

Hydrologic Connectivity –	Upstream: N/A	Downstream: Beyond study area	Adjacent/Abutting: N/A

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 10'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 5'	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Clay	LB: Forest
☐ Other:	Severe Erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes: Structure @ I-270 poor stability collapsed into stream channel

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.php) Month: August Year: 2018												
☒ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	☒	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	☒ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I270/I495 Managed Lanes Studer		**Feature ID:** 25B	**Stream Order:** 1
Date: 5/16/18	**State:** MD	**Photos:** Upstream, downstrem	
Crew: BS NC	**County:** Montgomery	**Last Flag Number:** A(1-5) B(1-5)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Flowing at time of site visit, post/during rain event			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SWM pipes	Downstream: Cabin John Creek ↳ Outside of study area	Adjacent/Abutting: Forest

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width:	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6'	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate erosion fair stability	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: Gabion basket at outfall upstream, also netting in channel

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.php) Month: April Year: 2018												
○ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	⊗	○	○	○	○
⊗ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	⊗ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Flagged as 25X in field

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 25H	**Stream Order:** 3rd
Date: 5/29/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: NL, BW	**County:** Montgomery	**Last Flag Number:** 25H (1A-12A) (1B-12B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	● RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Base flow with at least 3" of water observed during site visit

Hydrologic Connectivity –	Upstream: Piped into SWM	Downstream: SWM Pond	Adjacent/Abutting: 25K

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3-4'	☒ Silts	☒ Sands	☐ Muck	RB: SWM / wetland
☐ Artificial (man-made)	Depth: 3-6"	☐ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: SWM / wetland
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Perennial stream within SWM facility

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temps-and-precip/climatological-rankings/index.php) Month: May Year: 18												
● No rain	○ 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	● >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I 495/I 270 Managed Lanes Study City/County: Montgomery Sampling Date: 6/21/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 25k-WET
Investigator(s): WT, RS Section, Township, Range: NA
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.070522 6 Long: -77.161822 Datum: NAD83
Soil Map Unit Name: Baile silt loam, (6A) 0-3% Slope NWI classification: PEMIB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:
25k is located within 25-SWM1 that has Stream 25H flowing through it.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 1"
Water Table Present? Yes ☐ No ☑ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
25k receives hydrology from 25H and runoff from adjacent uplands

Flagged aerially

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 25k-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover:

Shrub Stratum (Plot size: 30 ft)			
1. Baccharis halimifolia	10	Yes	FACW
2. Hibiscus moscheutos	5	Yes	OBL
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Herb Stratum (Plot size: 30 ft)			
1. Typha angustifolia	25	Yes	OBL
2. Juncus effusus	25	Yes	FACW
3. Carex lurida	20	Yes	OBL
4. Schoenoplectus tabernaemontani	20	No	OBL
5. Hibiscus moscheutos	5	No	OBL
6. Carex vulpinoidea	5	No	OBL
7. Onoclea sensibilis	5	No	FACW
8. Eupatorium maculatum	5	No	FACW
9. Ludwigia palustris	5	No	OBL
10. Leersia virginica	2	No	OBL
11. Persicaria pensylvanica	2	No	FACW
	129 = Total Cover		

50% of total cover: 64.5 20% of total cover: 25.8

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 20% of total cover:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 25A-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	100					Silt loam	
4-9	10YR 5/4	90	7.5YR 5/6	10	C	M	Silty clay	
9-20	10YR 5/4	100					Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 2.05 Ac Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Correctional facility, I-270 Distance to nearest roadway or other development 30ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 25K

Latitude 39.07055226 Longitude -77.161522

Prepared by: RS Date 6/25/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	7, 9, 15		
Floodflow Alteration	Yes	2, 5, 7, 8, 9, 10, 15, 18		
Fish and Shellfish Habitat	Yes	3, 5, 14, 17		
Sediment/Toxicant Retention	Yes	1, 2, 3, 5, 10, 12, 16		
Nutrient Removal	Yes	2, 3, 4, 5, 8, 9, 10, 11, 13		
Production Export	Yes	4, 5, 7, 8, 10, 12		White tail deer observed
Sediment/Shoreline Stabilization	Yes	2, 3, 4, 9, 12, 15		
Wildlife Habitat	Yes	3, 8, 13, 14, 16, 17, 19, 20, 21		White tail deer, green frog
Recreation	No			Access is not easy
Educational/Scientific Value	NO			
Uniqueness/Heritage	Yes	14, 16, 19, 27,		
Visual Quality/Aesthetics	Yes	2, 3,		
ES Endangered Species Habitat	No			
Other	—			

Notes: Wetland is a constructed SWM pond with an intermitten- stream flowing through

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I 270/495 Managed Lane Study		**Feature ID:** 25L	**Stream Order:** 1
Date: 11/7/18	**State:** MD	**Photos:** Upstream, Downstream	
Crew: SH RS	**County:** Montgomery	**Last Flag Number:** 25L-5b, 26L-6a	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	(X) RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Drainage feature from existing storm water management feature.			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)
Hydrologic Connectivity –	Upstream: 25-SWM8	Downstream: 25a	Adjacent/Abutting: 25-SWM8

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4'	☑ Silts	☒ Sands	☐ Muck	RB: forested
☐ Artificial (man-made)	Depth: 1.5'	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: forested
☐ Other:	stable	Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings.index.php) Month: November Year: 2018													
⊘	No rain	○	0-0.5	○	○	○	○	○	○	○	○	○	○	○	○	⊘	○
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☒	Observed/predicted flow events
	☑	Vegetation matted down, bent, or absent	☐	Destruction of terrestrial veg.	☐	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:
Notes:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270/I-495 MANAGED LANE City/County: Montgomery Sampling Date: 5/9/18
Applicant/Owner: SHA State: MD Sampling Point: 26A-WET
Investigator(s): WT, NC Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.081243 Long: -77.170529 Datum: NAD83
Soil Map Unit Name: Glenville Silt loam (5B) NWI classification: PEMIB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes [X] No [ ]
Hydric Soil Present? Yes [X] No [ ]
Wetland Hydrology Present? Yes [X] No [ ]

Is the Sampled Area within a Wetland? Yes [X] No [ ]

Remarks:
PEM abutting unnamed tributary to Watts Branch (26B).
Previously identified as PEM08. No changes to wetland boundary.
Photo: 26A_WET_EAST

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [X] No [ ] Depth (inches): 2"
Water Table Present? Yes [X] No [ ] Depth (inches): 0"
Saturation Present? (includes capillary fringe) Yes [X] No [ ] Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area receives water from spring seep and from stormwater runoff from adjacent wooded uplands and SWM Facility 26-SWM3 to the south.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 26A-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	10	Y	FAC
2. Fraxinus pennsylvanica	10	Y	FACW
3. Nyssa Sylvatica	10	Y	FAC
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1. Viburnum dentatum	2	Y	FAC
2.			
3.			
4.			
5.			
6.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 1		
Herb Stratum (Plot size: 30 ft)			
1. Ficaria verna	20	Y	FAC
2. Leersia Virginica	20	Y	FACW
3. Juncus effusus	10	N	FACW
4. Carex lurida	5	N	OBL
5. Impatiens capensis	5	N	FACW
6. Dicanthelium clandestinum	2	N	FAC
7. Smilax rotundifolia	2	N	FAC
8.			
9.			
10.			
11.			
	64 = Total Cover		
50% of total cover: 32	20% of total cover: 13		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 26A-WGT

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	95	7.5YR 4/4	5	C	M	Silt loam	saturated
5-11	10YR 4/2	100					Silt loam	saturated
11-20	10YR 4/2	100					silty clay	saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.21 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested, Stream Distance to nearest roadway or other development 56 ft

Dominant wetland systems present PEMIB Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Adjacent to 26B

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 26A

Latitude 39.081243 Longitude -77.170529

Prepared by: WT Date 5/9/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	—			

Notes: WETLAND System drains into Watts Branch (26B)

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 26B	**Stream Order:** 2nd
Date: 5/9/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT, NC	**County:** Montgomery	**Last Flag Number:** 26B(1-7A)/1-7B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Defined Bed and Banks. Drains abutting Forested Wetland

Hydrologic Connectivity –	Upstream: Stream Continues	Downstream: Beyond Study Area	Adjacent/Abutting: PFM (26A)

Feature Description: *(check all that apply)* Upstream beyond study area

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 8'	☒ Silts	☒ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 4'	☒ Cobbles	☐ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: Pooled water observed. No base flow, flows under I-270 and Watts Branch Pkwy

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php)						Month:		Year:				
☒ No rain	☒	0-0.5	○	○	○	○	○	○	○	☒	○	○	May	○	2018
○ Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Previously WUS18

Waters of the U.S. Data Sheet

Project: I270/I495 Managed Lane Study		Feature ID: 26C	Stream Order: 2nd
Date: 5/10/18	State: MD	Photos: Upstream, downstream	
Crew: WT, NC	County: Montgomery	Last Flag Number: 26C (1-12A) (1-12B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	(X) RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Base flow observed during site investigation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 26G	Downstream: Beyond study area	Adjacent/Abutting: 26F, 26D, 26E

Feature Description: *(check all that apply)*

Shape (with respect to OHW)			Substrate			Vegetation Cover Type (MBSS)
[X] Natural Channel Shape	Width: 9'		[ ] Silts	[X] Sands	[ ] Muck	RB: Forested
[ ] Artificial (man-made)	Depth: 1'		[X] Cobbles	[X] Gravel	[X] Other:	
[X] Manipulated (man-altered)	Bank Erosion/stability:		[ ] Bedrock	[ ] Concrete	Rip rap	LB: Scrub-shrub
[ ] Other:	Good, Stable		Side slope: [X] ≥1:1 [ ] 2:1 [ ] 3:1 [ ] ≤4:1			

Notes: Flows under I-270 and also under Watts Branch Pkwy

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: May Year: 2018												
[X] No rain	[X] 0-0.5	○	○	○	○	○	○	○	[X]	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
[X] Yes	[X] Clear, natural line impressed on the bank	[ ] Sediment deposition	[ ] Sediment sorting
[ ] No	[ ] Changes in the character of soil	[ ] Water staining	[ ] Scour
	[ ] Shelving	[X] Presence of flood litter/debris	[ ] Observed/predicted flow events
	[ ] Vegetation matted down, bent, or absent	[ ] Destruction of terrestrial veg.	[ ] 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:

Notes:

* Previously WUS17/WUS17A

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270/I-495 Managed Lane Study City/County: Montgomery Sampling Date: 5/10/18
Applicant/Owner: SHA State: MD Sampling Point: 26D-WET
Investigator(s): WT, NC Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0773954 Long: -77.169275 Datum: NAD83
Soil Map Unit Name: Blucktown Channery Silt loam (116D) NWI classification: PEMIE
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
PEM parallel to paved walk along I-270 and Watts Branch Parkway.
Flags 26D(1-6) Photo: 26D-WET. North

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 1/2"
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area appears to be fed by spring seep from adjacent hillside. Wetland drains into 26C.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 26D-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Acer saccharinum	5	Y	FACW
2. Fraxinus pennsylvanica	5	Y	FACW
3. Diospyros virginiana	5	Y	FAC
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 8	20% of total cover: 3		
Sapling Stratum (Plot size: 30 ft)			
1. Lonicera tatarica	10 %	Y	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 30 ft)			
1. Rosa multiflora	2	Y	FACU
2.			
3.			
4.			
5.			
6.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 1		
Herb Stratum (Plot size: 30 ft)			
1. Leersia virginica	20	Y	FACW
2. Mannosteglum virginicum	20	Y	FAC
3. Poa palustris	10	N	FACW
4. Lycopus sp.	2	N	NI
5. Persicaria sagittata	2	N	OBL
6. Parthenocissus quinquefolia	2	N	FACU
7.			
8.			
9.			
10.			
11.			
	56 = Total Cover		
50% of total cover: 28	20% of total cover: 11		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 26D-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/1	100					silt loam	Saturated
3-6	10YR 4/2	100					Sandy loam	Saturated
6-12	10YR 5/3	75	5YR 5/3	20	C	M	silty clay	
			7.5YR 5/6	5	C	M		
12-20	10YR 4/4	90	7.5YR 5/6	10			silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested, developed Distance to nearest roadway or other development 30 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 26D

Latitude 39.0773954 Longitude -77.169275

Prepared by: WT Date 5/10/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	—			

Notes: WETLAND DRAINS INTO 26C.
Wetland adjacent to I-270 Soundwall.

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270/I-495 Managed Lanes City/County: Montgomery Sampling Date: 5/10/18
Applicant/Owner: SHA State: MD Sampling Point: 26E-WET
Investigator(s): WT, NC Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0772380 Long: -77.169106 Datum: NAD83
Soil Map Unit Name: Baile silt loam (6A) NWI classification: PEMIB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
PEM paralleling sound wall. Previously identified as PEM09.
Flags: 26E(1-11)
Natural gas line runs under wetland. Photo: 26E_WET_South

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)
- [X] Surface Water (A1)
- [X] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [X]	No [ ]	Depth (inches): 1"
Water Table Present?	Yes [X]	No [ ]	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): 0"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Spring seep drains through wetland to gabion basket along 26C. Extended wetland to make connection to 26C.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: 26E-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum (Plot size: 30 ft)			
1. Poa palustris	80	Y	FACW
2. Leersia virginica	10	N	FACW
3. Typha latifolia	2	N	OBL
4. Carex lurida	2	N	OBL
5. Parthenocissus quinquefolia	1	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 48 20% of total cover: 19			
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: ____ 20% of total cover: ____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 26E-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/1	100%					Sandy loam	saturated
5-11	Gley1 5/10Y	75%	10YR 5/6	25	C	M	silty clay	saturated
11-20	Gley1 4/10Y	95%	10YR 5/4	5	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.03 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use forested, developed Distance to nearest roadway or other development 48 ft.

Dominant wetland systems present PEMIB Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? —

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 26E

Latitude 39.077238 Longitude -77.169106

Prepared by: WT Date 5/10/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	—			

Notes: WETLAND DRAINS into 26C.
Natural Gas line RUNS underneath wetland System.
Adjacent to I-270 Soundwall.

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery County Sampling Date: 6/19/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 26F-WET
Investigator(s): WT, NL, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.077529 Long: -77.167283 Datum: NAD83
Soil Map Unit Name: Baile silt loam, 0 to 3 percent slopes (6A) NWI classification: PEM1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:
26F is a wetland located within 26-SWM2. 26C flows through the wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 1"
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 1"
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
26F receives hydrology from 26C, 26G, and multiple outfalls. It also receives runoff from adjacent uplands. 26J flows into 26F.

Flags: 26F(1-12)

Photos: 26F-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 26F-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Salix nigra	10	Yes	OBL
2. Acer rubrum	10	Yes	FAC
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling Stratum (Plot size: 30 ft)			
1. Salix nigra	5	Yes	OBL
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. Persicaria pensylvanica	20	Yes	FACW
2. Leersia oryzoides	20	Yes	OBL
3. Peltandra virginica	10	No	OBL
4. Boehmeria cylindrica	10	No	FACW
5. Carex tribuloides	10	No	
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30 ft)			
1. Parthenocissus quinquefolia	5	Yes	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Other species observed; Platanus occidentalis, Typha angustifolia, Schoenoplectus tabernaemontani

SOIL

Sampling Point: 96F-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	100					Silty clay	Moist

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.71Ac Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested upland, I-270, Walking trail Distance to nearest roadway or other development 30 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 26F

Latitude 39.077529 Longitude -77.167285

Prepared by: RS Date 6/20/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	7, 9,		
Floodflow Alteration	Yes	1, 2, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 18	X	Designed as a SWM pond
Fish and Shellfish Habitat	Yes	3, 7, 8, 9, 14, 17		
Sediment/Toxicant Retention	Yes	1, 2, 3, 7, 10, 11, 12, 13, 14, 15, 16	X	Designed as a SWM pond
Nutrient Removal	Yes	3, 4, 5, 8, 9, 10, 11, 12, 13, 14	X	Designed as a SWM pond
Production Export	Yes	2, 5, 7, 8, 12		White tail deer noted
Sediment/Shoreline Stabilization	Yes	1, 2, 3, 4, 12, 15		Sediment marks up on herbaceous vegetation
Wildlife Habitat	Yes	3, 8, 13, 17, 19, 20,		Green frogs and bird species noted
Recreation	Yes	11, 12		Off of walking trail
Educational/Scientific Value	Yes	9, 10,		
Uniqueness/Heritage	Yes	1, 19, 27		Tough to see entire wetland from accessible area
Visual Quality/Aesthetics	Yes	6		
ES Endangered Species Habitat	No			
Other	—			

Notes: Wetland is part of a man-made stormwater pond.

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 26 G	**Stream Order:** 1st
Date: 6/19/18	**State:** Maryland	**Photos:** Upstream, downstream	
Crew: WT, BS, NL	**County:** Montgomery	**Last Flag Number:** N/A, already flagged	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			⊗ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Ephemeral at upstream extend, banks and bed become more defined downstream and intermittent

Hydrologic Connectivity –	Upstream: 26H	Downstream: 26F, 26C	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 6"	☒ Silts	☑ Sands	☐ Muck		RB: Upland forest
☐ Artificial (man-made)	Depth: 3"	☒ Cobbles	☒ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete			LB: Upland forest
☐ Other:	Minor but stable	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: There is a stormwater outfall that adds flow to 26G in the ephemeral part

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: May Year: 2018												
⊗ No rain	⊗ 0-0.5	○	○	○	○	○	○	○	⊗	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I 495/I 270 Managed Lanes Study City/County: Montgomery County Sampling Date: 6/19/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 26H-WET
Investigator(s): WT, NL, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.075005 Long: -77.164635 Datum: NAD 83
Soil Map Unit Name: Glenelg silt loam, 3 to 8 percent slopes (2B) NWI classification: PFM1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:
26H is located northwest of Falls Rd and abuts 26G

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [✓] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [✓] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
26H receives hydrology from runoff from adjacent uplands.

Photo: 26H-WET_Northeast

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 264-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	5	Yes	FACW
2. Diospyros virginiana	5	Yes	FAC
3. Juglans nigra	5	Yes	FACU
4.			
5.			
6.			
	15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30 ft)			
1. Diervilla lonicera	5	Yes	UPL
2.			
3.			
4.			
5.			
6.			
	5	= Total Cover	

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: 30 ft)			
1. Onoclea sensibilis	40	Yes	FACW
2. Impatiens capensis	20	Yes	FACW
3. Toxicodendron radicans	10	No	FAC
4. Rubus occidentalis	10	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80	= Total Cover	

50% of total cover: 40 20% of total cover: 16

Woody Vine Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 26H-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
6-4	10YR 4/3	75	10YR 5/6	20	C	M	Silty Clay	
			5YR 5/6	5	C	M		
4-10	10YR 4/2	90	5YR 4/6	10	C	M	Silty Clay	
10-20	10YR 6/1	85	10YR 5/6	15	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 6.03 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Upland, Roadway Distance to nearest roadway or other development 30 ft

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upstream

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 26H

Latitude 39.075005 Longitude -77.164635

Prepared by: RS Date 6/20/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes			
Floodflow Alteration	Yes			
Fish and Shellfish Habitat	Yes			
Sediment/Toxicant Retention	Yes			
Nutrient Removal	Yes			
Production Export	Yes			
Sediment/Shoreline Stabilization	Yes			
Wildlife Habitat	Yes			
Recreation	Yes			
Educational/Scientific Value	Yes			
Uniqueness/Heritage	No			
Visual Quality/Aesthetics	Yes			
ES Endangered Species Habitat	NO			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: 3495/I270 Managed Lanes Study		**Feature ID:** 26J	**Stream Order:** 1st
Date: 6/19/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: VT, RS, NL	**County:** Montgomery	**Last Flag Number:** 26J-2A, 26J-2B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Man-made Channel, but had water in it at time of visit

Hydrologic Connectivity –	Upstream: 26-SWM4	Downstream: 26F	Adjacent/Abutting: 26F

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 8'	☐ Silts	☐ Sands	☐ Muck	RB: Forest
☒ Artificial (man-made)	Depth: 2'	☐ Cobbles	☐ Gravel	☒ Other: Riprap	
☐ Manipulated (man-altered)	Bank Erosion/stability: No erosion, stable	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: 26J is an outfall from 26-SWM4 that drains into 26F, man-made w/ Gabion Baskets

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
⊗ No rain	⊗ 0-0.5
○ Light rain	○ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) **Month:** May **Year:** 2018

○	○	○	○	○	○	○	⊗	○	○	○	○	○
-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Verified 5/9/18

NEW ID: 27A

Map 15 Section 27

Stream Datasheet

Project: 270 Date: 8/6/15

Stream ID: ~~WL012~~ / WUS19 / 27A Investigators: RS, WT

Stream Name: Watts Branch

Use (I-IV): I-P

Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW

Flow: ☒ Perennial ☐ Intermittent ☐ Ephemeral

If ephemeral, provide justification for flagging: N/A

Direction of flow: South WUS19/27A Gradient (%): 1

Connection to TNW: ~~WL012~~ is Watts branch, which flows into the Potomac River, which is a TNW.

Avg. Width (Top of Bank): 17' Avg. Depth (Top of Bank): 10"

Avg. Water Depth: 7" WUS19/27A Avg. Slope of Banks (°): LB 15 RB 20

Has stream been altered? If so, how: ~~WL012~~ is culverted at the upstream extent.

Common Substrate:

☒ Bedrock ☒ Cobble/Gravel ☒ Concrete ☒ Sand ☒ Silt

☐ Other:

Habitat Complexity:

☒ Riffles/pools ☒ Undercut Banks ☒ Tree Roots ☒ Woody Debris

Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor

Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor

Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:

RB:	☒ Forested	☒ Shrub	☒ Herb.	☒ Wetlands	☐ Developed	☐ Maintained
LB:	☒ Forested	☒ Shrub	☒ Herb.	☒ Wetlands	☐ Developed	☐ Maintained

Flags: WUS19 WUS19 ~~WL012~~-001 to ~~WL012~~-059

Additional Notes:

Photos: [redacted] Upstream, Downstream

Adjacent to 27G

Upstream: 27D, 27B, 27H, 27J, 27K

Downstream: Out of study area

Take upstream and downstream photos.

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study	**Feature ID:** 27B	**Stream Order:** 1st
Date: 5/9/18 **State:** MD	**Photos:** Upstream/Downstream	
Crew: WT, NC **County:** Montgomery	**Last Flag Number:** No changes to stream polygon	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	● RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: No flow observed 5/9/18, follow up visit 12/13/18 showed consistent flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Culvert outside of study area	Downstream: Watts Branch (27A)	Adjacent/Abutting: 27E

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)			Substrate						Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 5'		☑ Silts	☑ Sands	☐ Muck	RB: Forest
☑ Artificial (man-made)	Depth: 1'		☑ Cobbles	☐ Gravel	☑ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:		☐ Bedrock	☐ Concrete	Rip rap	LB: Forest
☐ Other:	Moderate stability		Side slope: ☐ ≥1:1 ☑ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Part of channel drains wetland 27E, culverted at the upstream extent with some rip rap.						

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: May	Year: 2018
● No rain	● 0-0.5	○	○	○	○	○	○	○	●	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 27C	**Stream Order:** 1st
Date: 5/9/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT, NC	**County:** Montgomery	**Last Flag Number:** No changes to stream geology	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ☒ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Defined Bed and Bank. Drains abutting PFO (27F) into 270 and eventually Watts Branch.

Hydrologic Connectivity –	Upstream: Culvert/road	Downstream: Watts Branch (27A)	Adjacent/Abutting: PFO (27F)

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Drains into 270, a tributary to Watts Branch

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: May Year: 2018												
☒ No rain	☒ 0-0.5	○	○	○	○	○	○	○	☒	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Previously WUS 19C

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 27D	**Stream Order:** 1st
Date: 5/9/18	**State:** MD	**Photos:** Upstream - Downstream	
Crew: WT, NC	**County:** Montgomery	**Last Flag Number:** No changes to stream polygon.	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: BASE Flow @ time of investigation

Hydrologic Connectivity – Upstream: 27C | Downstream: Wahs Branch (27A) | Adjacent/Abutting: PFO (27F)

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (NBSS)
☒ Natural Channel Shape	Width: 4'	☐ Silts	☐ Sands	☐ Muck	RB: Forested
☐ Artificial (man-made)	Depth: 1'	☐ Cobbles	☐ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Moderate	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:		Side slope: ☐ ≥1:1 ☐ 2:1 ☒ 3:1 ☐ ≤4:1			

Notes: Drains abutting PFO. Base Flow @ time of investigation. Unnamed tributary to Wahs Branch.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php)													Month: May	Year: 2018
☒ No rain	☒ 0-0.5	○	○	○	○	○	○	○	☒	○	○	○	○	○		
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Previously WUS-19D

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270 / I-495 MANAGED LANE City/County: Montgomery Sampling Date: 5/9/18
Applicant/Owner: SHA State: MD Sampling Point: 27E-WET
Investigator(s): WT, NC Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2-5
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.0888143 Long: -77.173497 Datum: NAD83
Soil Map Unit Name: Hatboro silt loam (54A) NWI classification: PFO1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
PFO drains into UNNAMED tributary to WATTS BRANCH (27B)
Previously identified as PFO1B.
Expanded lower extent of wetland to connect to 27B. Photo ID: 27B_WET_EAST

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [X] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [X] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [ ]	Depth (inches):
Water Table Present?	Yes [X]	No [ ]	Depth (inches): -4"
Saturation Present? (includes capillary fringe)	Yes [X]	No [ ]	Depth (inches): -4"

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area receives sheetflow runoff from adjacent wooded uplands.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 27E-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	30	Y	FACW
2. Acer rubrum	30	Y	FAC
3. Ulmus americana	10	N	FACW
4. Platanus occidentalis	10	N	FACW
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	5	Y	FACW
2. Cephalanthus occidentalis	2	Y	OBL
3.			
4.			
5.			
6.			
	7 = Total Cover		
50% of total cover: 3.5	20% of total cover: 1.4		
Herb Stratum (Plot size: 30 ft)			
1. Symplocarpus foetidus	40	Y	OBL
2. Ficaria verna	10	N	FAC
3. Microstegium vimineum	5	N	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
50% of total cover: 28	20% of total cover: 11		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 27E-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/1	95	7.5YR 5/6	5	C	M	Silt loam	saturated @ -4"
9-18	10YR 4/1	80	7.5YR 5/6	20	C	M	Silt loam	saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.13Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Residential, Recreation, Roadways Forest Distance to nearest roadway or other development 50'

Dominant wetland systems present Palustrine Forested Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Top

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 27E

Latitude N39.088143 Longitude W -77.173497

Prepared by: WT Date 5/9/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	Y			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	Y			
Sediment/Shoreline Stabilization	Y			
Wildlife Habitat	Y			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes: WETLAND DRAINS INTO UNNAMED TRIBUTARY TO WATTS BRANCH. * Refer to backup list of numbered considerations.

Previous ID: PF013

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I-270/I-495 MANAGED LANE City/County: Montgomery Sampling Date: 5/9/18
Applicant/Owner: SHA State: MO Sampling Point: 27F-WET
Investigator(s): WT, NC Section, Township, Range:
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CONCAVE Slope (%): 2-5
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.08828136 Long: -77.173905 Datum: NAD83
Soil Map Unit Name: Hatboro Silt loam NWI classification: PFOIE
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	Is the Sampled Area within a Wetland? Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:
PFO abuts unnamed tributaries to WATTS BRANCH (27C AND 27D).
Previous ID: WP001
Photo ID: 27D_WET_North

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [X] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [X] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [ ] No [X] Depth (inches): _____
Water Table Present? Yes [ ] No [X] Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes [ ] No [X] Depth (inches): _____

Wetland Hydrology Present? Yes [X] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area receives runoff from roadway and is inundated during flooding of 27C and 27D.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 27F-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	30	Y	FACW
2. Quercus palustris	20	Y	FACW
3. Acer negundo	10	N	FAC
4. Acer rubrum	5	N	FAC
5. Ulmus americana	5	N	FACW
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot size: 30 ft)			
1. Fraxinus pennsylvanica	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 30 ft)			
1. Lonicera tatarica	20	Y	FACU
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 30 ft)			
1. Toxicodendron radicans	20	Y	FAC
2. Symplocarpus foetidus	20	Y	OBL
3. Arisaema triphyllum	10	N	FACW
4. Onoclea sensibilis	5	N	FACW
5. Lonicera japonica	5	N	FACU
6. Parthenocissus quinquefolia	5	N	FACU
7. Alliaria petiolata	5	N	FACU
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 27F-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 5/6	5	C	M	Silt loam	
4-20	10YR 5/3	85	7.5YR 4/6	15	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.16 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Residential, Recreation, Forest Roadways Distance to nearest roadway or other development 20'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Top

How many tributaries contribute to the wetland? ONE Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 27F

Latitude N 39.0898136 Longitude W - 77.173905

Prepared by: WT Date 5/9/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	Y			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	Y			
Sediment/Shoreline Stabilization	Y			
Wildlife Habitat	Y			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes: WETLAND Recieves runoff FROM Adjacent ROADWAY. Natural Gas Line EASEMENT runs through WETLAND.

* Refer to backup list of numbered considerations.

Verified
WT 3/19/18

Map 15
Sec 27
Labeled PSS01

27G

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 270 City/County: Montgomery Sampling Date: 8/7/15
Applicant/Owner: SHA State: MD Sampling Point: ~~WP004~~ WET
Investigator(s): RS, WT Section, Township, Range:
Landform (hillslope, terrace, etc.): Toe-of-slope Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): 148 LRR S Lat: 39-05-14.7 Long: 77-10-32.0 Datum: NAD83
Soil Map Unit Name: Hatboro silt loam (54A) NWI classification: PSS1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
~~WP004~~ 27G is located south of W. Montgomery Avenue. Wetland is in good condition. 27G functions as flood control and toxicant removal. Wetland area drains to Watts Branch, a tributary to Potomac River, a TNW.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____
Water Table Present? Yes ____ No ✓ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
~~27G~~
~~WP004~~ receives hydrology from a spring seep and runoff from the I-270 on ramp from W. Montgomery Avenue.

Flagging: 27G -001 to 27G -008

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: WP004-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra*	5	yes	FACU
2. *Prunus serotina*	5	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. *Fraxinus pennsylvanica*	5	no	FACW
2. *Viburnum prunifolium*	20	yes	FACU
3. *Lonicera tatarica*	2	no	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	27	= Total Cover	
Herb Stratum (Plot size: 30 ft)			
1. *Symplocarpus foetidus*	15	yes	OBL
2. *Impatiens capensis*	5	no	FACW
3. *Calystegia sepium*	10	no	FAC
4. *Carex lurida*	5	no	FACW
5. *Toxicodendron radicans*	15	yes	FAC
6. *Urtica dioica*	5	no	FAC
7. *Vitis aestivalis*	5	no	FACU
8.			
9.			
10.			
11.			
12.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	15	x 2 =	30
FAC species	30	x 3 =	90
FACU species	42	x 4 =	168
UPL species		x 5 =	
Column Totals:	102 (A)		303 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

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SOIL

Sampling Point: ~~WP004-WET~~ X

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	55	10YR 3/2	30	D	M	Silt loam	Saturated
			7.5YR 4/4	15	C	M		
6-20	10YR 5/2	50	10YR 3/2	10	D	M	Silt loam	Saturated
			7.5YR 5/4	40	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ✓ No ___

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 AC Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Roadway, Stream Distance to nearest roadway or other development 20 ft

Dominant wetland systems present PSSIA Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upstream

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 27G

Latitude 39.087380 Longitude -77.175612

Prepared by: WT Date 5/17/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	—			

Notes: WETLAND DRAINS South into 27A (WATTS Branch)

* Refer to backup list of numbered considerations.

Waters of the U.S. Data Sheet

Project: I270/I495 Managed Lane Study		**Feature ID:** 27H	**Stream Order:** 1st
Date: 5/14/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: NL NC	**County:** Montgomery	**Last Flag Number:** No changes to feature	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Drains wetland 27G, flowing at time of site visit

Hydrologic Connectivity –	Upstream: 27G	Downstream: 27A	Adjacent/Abutting: NA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☐ ☒ Silts	☐ Sands	☒ Muck	RB: Herbaceous
☐ Artificial (man-made)	Depth: 6"	☐ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Herbaceous
☐ Other:	No erosion, stable	Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Small channel draining wetland

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
⊗ No rain	○ 0-0.5
○ Light rain	⊗ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI Month: April Year: 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○	○	○	○	○	○	○	○	⊗	○	○	○	○
Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

VERIFIED WT 3/19/18

27J SB7NB2-A Map 15 Sec 27

Waters of the U.S. Data Sheet

Project: I-270 I/M SB07/NB02 / I270/I495 Managed Lanes Study		**Feature ID:** SB07/NB02-A	**Stream Order:** 1
Date: 8-2-2017 / 3/19/18	**State:** MD	**Photos:** 4512-13 / Upstream	
Crew: MES/ET / WT, RS	**County:** Montgomery	**Last Flag Number:** A315	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class:			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: Pipe from FROM OUTSIDE STUDY AREA	Downstream: WUS 19(27A)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: Hedgerow
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☐ Gravel	☒ Other: riprap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Stable	☐ Bedrock	☐ Concrete		LB: Hedgerow
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: March	Year: 2018
⊗ No rain	⊗ 0-0.5	○ -6 ○ -5 ○ -4 ○ -3 ⊗ -2 ○ -1 ○ 0 ⊗ 1	○ 2 ○ 3	○ 4 ○ 5 ○ 6
○ Light rain	◐ 0.5-1	Severe Drought	Moderate Drought	Normal
○ Heavy Rain	○ >1		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 (Rip-rapped)		
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Man-made drainage swale collecting runoff from Montgomery Avenue. Changed Jurisdictional Status based on Field Meeting with RK+K on 4/24/18.

VERIFIED WT 3/19/18

27K SB7NB2-B Map 15 Sec 27

Waters of the U.S. Data Sheet

Project: I270 TCM SB07/NB02 I270/I495 Managed Lanes Study		**Feature ID:** SB07/NB02-B	**Stream Order:** 1
Date: 8.3.2017	**State:** MD	**Photos:** 9517-18 / Upstream / downstream	
Crew: MKS/ET / WT RS	**County:** MONTGOMERY	**Last Flag Number:** SAR B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	⊗ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: NO WATER, drains MOWN field			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: N/A	Downstream: WUS 19 (27A)	Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 3'	☒ Silts	☒ Sands	☐ Muck	RB: Hedgerow
☐ Artificial (man-made)	Depth: 1'	☒ Cobbles	☒ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability: unstable	☐ Bedrock	☐ Concrete		LB: Hedgerow
☐ Other:		Side slope: ☒ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: March	Year: 2018
⊗ No rain	⊗ 0-0.5	○	○	○	○	⊗	○	○	⊗	○	○	○	○	○		
○ Light rain	● 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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					
☒ 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/debris	☐ Observed/predicted flow events
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Verified WT 3/27/18

Map 11 Sec 27 / 27L

Waters of the U.S. Data Sheet

Project: I-270 ICM /I270/I495 Managed Lanes Study		**Feature ID:** NB3-A	**Stream Order:** 1
Date: 8-17-2017	**State:** MD	**Photos:** 9560-68 / Upstream, Downstream	
Crew: MES/CCO WT RS	**County:** MONTGOMERY	**Last Flag Number:** 4A&B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: flowing at time of field investigation - low flow			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity – Upstream: 24" PIPE to NB3-B(27M) Downstream: 4' PIPE Adjacent/Abutting: N/A

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 2-4'	☒ Silts	☒ Sands	☐ Muck	RB: Hedgerow
☐ Artificial (man-made)	Depth: 6"	☒ Cobbles	☐ Gravel	☒ Other: Riprap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Stable-Riprap	☐ Bedrock	☐ Concrete		LB: Hedgerow
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php	Month: March	Year: 2018
⊗ No rain	⊗ 0-0.5	-6 -5 -4 (Severe Drought) -3 -2 (Moderate Drought) -1 0 1 (Normal) 2 3 (Moderately Wet) 4 5 6 (Severely Wet)		
○ Light rain	○ 0.5-1			
○ Heavy Rain	⊗ >1			

Non-tidal tributary has: *(check all that apply; include photos for each & list photo #)*

Bed and Banks	Ordinary High Water Mark			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

BASE FLOW OBSERVED @ time of Investigation.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery County Sampling Date: 5/23/12
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 27M-UP2
Investigator(s): PS, RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): 3-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.108955 Long: -77.184608 Datum: NAD 83
Soil Map Unit Name: Glenelg silt loam, 3 to 8 percent slopes (2B) NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:
Upland forested area northwest of 27M PFO.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology observed

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 2M-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Acer rubrum	40	Yes	FAC
2. Diospyros virginiana	20	Yes	FAC
3.			
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. Parthenocissus quinquefolia	30	Yes	FACU
2. Rosa multiflora	20	Yes	FACU
3. Lonicera japonica	20	Yes	FACU
4. Toxicodendron radicans	10	No	FAC
5. Rubus occidentalis	10	No	UPL
6. Lindera benzoin	10	No	FACW
7. Allium oleraceum	5	No	UPL
8. Smilax rotundifolia	5	No	FAC
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 27M-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Silty clay	
6-20	10YR 5/3	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

27M-PFO

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery County Sampling Date: 5/23/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 27M-W3 PFO
Investigator(s): PS RS Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-8
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.108796 Long: -77.184606 Datum: NAD83
Soil Map Unit Name: Glenelg silt loam, 3 to 8 percent slopes NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:
It follows the R.O.W. fence down to the SWM pond fence

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
27M-PFO receives hydrology from runoff from I-270 northbound and runoff from adjacent uplands.

Flags: 27M(1-10) Photos: 27M-WET-PFO
27M-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 27M-WET_PFO

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	70	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	70 = Total Cover		

50% of total cover: 45 20% of total cover: 14

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30 ft)			
1. Onoclea sensibilis	60	Yes	FACW
2. Phalaris arundinacea	20	No	FACW
3. Parthenocissus quinquefolia	10	No	FACU
4. Lindera benzoin	10	No	FACW
5. Lonicera japonica	5	No	FACU
6. Rosa multiflora	5	No	FACU
7. Allium oleraceum	5	No	UPL
8.			
9.			
10.			
11.			
	115 = Total Cover		

50% of total cover: 57.5 20% of total cover: 23

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 27M-WET_PP0

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/2	100					Silty clay	
2-8	10YR 2/1	100					Silty clay	
8-20	10YR 3/1	80	5YR 5/6	20	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 6.34Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I-270, forested upland Distance to nearest roadway or other development 20ft

Dominant wetland systems present PFO/PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 27M

Latitude 39.108796 Longitude -77.184606

Prepared by: RS Date 6/7/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Yes	9, 10,		sheetflow inflows, outflow through SWM facility
Floodflow Alteration	Yes	2, 3, 4, 5, 7, 8, 9, 15, 18	X	Part of SWM facility
Fish and Shellfish Habitat	No			
Sediment/Toxicant Retention	Yes	2, 5, 12, 15, 16		
Nutrient Removal	Yes	3, 5, 8, 9, 10, 11		Part PEM/PFO
Production Export	Yes	1, 2, 4, 7, 12,		Burrows
Sediment/Shoreline Stabilization	Yes	2, 12, 14, 15		
Wildlife Habitat	Yes	3, 8, 13, 14, 17, 19, 20,		Burrows
Recreation	No			
Educational/Scientific Value	No			
Uniqueness/Heritage	Yes	1,		No easy access or visibility
Visual Quality/Aesthetics	No			↓
ES Endangered Species Habitat	No			
Other	—			

Notes: Part of wetland is within SWM facility

* Refer to backup list of numbered considerations.

Renamed 27N

Map 15
Sec 27

Stream Datasheet

Project: 270 Date: 8/7/15
Stream ID: WL014 / WUS19B 27N Investigators: RS, WT
Stream Name: Unnamed tributary to Watts Branch.

Use (I-IV): I
Rapanos Class: ☐ TNW ☒ RPW ☐ NRPW
Flow: ☐ Perennial ☒ Intermittent ☐ Ephemeral
If ephemeral, provide justification for flagging: 27N achieves significant nexus by providing nutrient cycling support and cooling through a shaded channel.

Direction of flow: Southwest Gradient (%): 1
Connection to TNW: 27N flows into 27A (Watts Branch), which flows into the Potomac River, which is a TNW.
Only jurisdictional from seep to 27A (Watts Branch)

Avg. Width (Top of Bank): 2.5' Avg. Depth (Top of Bank): 6"
Avg. Water Depth: N/A Avg. Slope of Banks (°): LB 30 RB 15
Has stream been altered? If so, how: N/A

Common Substrate:
☐ Bedrock ☐ Cobble/Gravel ☐ Concrete ☐ Sand ☒ Silt
☐ Other:

Habitat Complexity:
☐ Riffles/pools ☒ Undercut Banks ☒ Tree Roots ☒ Woody Debris
Bank Erosion: ☐ Severe ☐ Moderate ☒ Minor
Silt Deposition: ☐ Severe ☐ Moderate ☒ Minor
Is the stream problematically incised? ☐ Yes ☒ No

Riparian Zone:
RB: ☒ Forested ☒ Shrub ☒ Herb. ☐ Wetlands ☐ Developed ☐ Maintained
LB: ☒ Forested ☒ Shrub ☒ Herb. ☐ Wetlands ☐ Developed ☐ Maintained

Flags:
27N -001 to 27N -010
Receives flow from a seep
Additional Notes:
Photos: US-NE, DS-SW
Recieves runoff Runoff. No defined Bed and Banks Present.

Take upstream and downstream photos.

Waters of the U.S. Data Sheet

Project: I-270/I-495 Managed Lane Study		**Feature ID:** 28A	**Stream Order:** 1st
Date: 5/1/18	**State:** MD	**Photos:** 28A-Upstream-SW, 28A-Downstream-NE	
Crew: WT, PS	**County:** Montgomery	**Last Flag Number:** No Flags. Digitized Aerially	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Drains to outfall @ Northwest corner of pond into 29A

Hydrologic Connectivity –	Upstream: [redacted] 28-SWM5	Downstream: [redacted] 29A	Adjacent/Abutting: NA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: Varies	☐ Silts	☐ Sands	☐ Muck		RB: Maintained Park
☒ Artificial (man-made)	Depth: Several Feet	☐ Cobbles	☐ Gravel	☒ Other:	Rip Rap	
☐ Manipulated (man-altered)	Bank Erosion/stability: No Erosion, Good Stability From Rip Rap along Shoreline	☐ Bedrock	☐ Concrete			LB: Commercial Development
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1				

Notes: Assume pond was constructed within in-line stream.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: April Year: 2018												
☒ No rain	☐ 0-0.5	○	○	○	○	○	☐	○	○	☒	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	☒ >1	Severe Drought			Moderate Drought		Normal			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		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☒ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-270/I-495 MANAGED LANE STUDY		**Feature ID:** 28B	**Stream Order:** 1st
Date: 5/10/18	**State:** MO	**Photos:** 28B-Upstream-NW, 28B-Downstream-SE	
Crew: WT, NC	**County:** Montgomery	**Last Flag Number:** No change to stream polygon	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: BASE FLOW OBSERVED DURING FIELD INVESTIGATION

Hydrologic Connectivity –	Upstream: SWM - 28-SWM1	Downstream: 29A	Adjacent/Abutting: NA

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6'	☐ Silts	☐ Sands	☐ Muck		RB: Forested
☒ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:		
☐ Manipulated (man-altered)	Bank Erosion/stability: Good stability Concrete channel	☐ Bedrock	☒ Concrete			LB: Forested
☐ Other:		Side slope: ☐ ≥1:1	☒ 2:1	☐ 3:1	☐ ≤4:1	

Notes: DRains into 29A

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php) Month: MAY Year: 2018												
☒ No rain	☒ 0-0.5	○	○	○	○	○	●	○	☒	○	○	○	○	○
○ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ Abrupt change in plant community	
	☐ Leaf litter disturbed	☐ Presence of wrack line	☒ Other: high water mark on concrete	

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:

Notes:

Waters of the U.S. Data Sheet

Project: I495 / I-270 Managed Lane Study		**Feature ID:** 29A	**Stream Order:** [redacted] 2nd
Date: 4/26/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT, RS	**County:** Montgomery	**Last Flag Number:** (1-9A) (1-8B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	☒ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: BASE FLOW OBSERVED DURING FIELD INVESTIGATION			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SWM Pond, 28B	Downstream: Muddy Branch	Adjacent/Abutting: NA

Feature Description: *(check all that apply)* Lg Outside of study area

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 20'	☐ ☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2'	☐ ☒ Cobbles	☒ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Minor / Rip Rap @ outfall	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes: DUAL 72" Concrete Pipes, Rip Rap @ outfall

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
☒ No rain	○ 0-0.5
○ Light rain	☒ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI https://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

Month: April [redacted] Year: 2018

-6	-5	-4	-3	-2	[redacted] -1	0	1	☒ 2	3	4	5	6
Severe Drought			Moderate Drought			Normal		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		
☒ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I 495 / I 270 Managed Lanes Study		**Feature ID:** 29B	**Stream Order:** ~~1st~~ 2nd
Date: 4/26/18	**State:** MD	**Photos:** upstream, downstream	
Crew: WT RS	**County:** Montgomery	**Last Flag Number:** (1-7A) (1-6B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	⊗ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: BASE Flow observed During Field Investigation

Hydrologic Connectivity –	Upstream: Unnamed tributaries	Downstream: Potomac River	Adjacent/Abutting: NA

Feature Description: *(check all that apply)* (29D) * Both upstream and downstream is outside of the study area*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 20'	☐ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 2'	☒ Cobbles	☒ Gravel	☐ Other:	
☒ Manipulated (man-altered)	Bank Erosion/stability:	☒ Bedrock	☐ Concrete		LB: Forest
☐ Other:	Moderate erosion	Side slope: ☐ ≥1:1 ☐ 2:1 ☐ 3:1 ☒ ≤4:1			

Notes: 10' Culvert @ upstream extent, 29B is Muddy Branch

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
⊗ No rain	○ 0-0.5
○ Light rain	⊗ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php
Month: April Year: 2018

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
					[redacted]			⊗				
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: 1495 / 1270 Managed Lane Study		**Feature ID:** 29C	**Stream Order:** ~~3rd~~ 2nd
Date: 4/26/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: WT RS	**County:** Montgomery	**Last Flag Number:** 29C (1-11A) (1-11B)	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	⊗ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: BASE Flow observed During FIELD Investigation Drains to pipe @ I-270			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 29E, 29F	Downstream: Muddy Branch ↳ outside study area	Adjacent/Abutting: 29J, 29G (PFO), 29H

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 6'	☐ Silts	☐ Sands	☐ Muck	RB: FORESTED
☐ Artificial (man-made)	Depth: 1.5'	☒ Cobbles	☒ Gravel	☒ Other: Rip Rap	
☒ Manipulated (man-altered)	Bank Erosion/stability: Good Stability	☐ Bedrock	☐ Concrete		LB: Maintained Herbaceous/Mowed
☐ Other:		Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Segment continues south of I-270

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
⊗ No rain	○ 0-0.5
○ Light rain	⊗ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI Month: April Year: 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Final

Waters of the U.S. Data Sheet

Project: I270/I495 Managed Lanes Study		**Feature ID:** 29D	**Stream Order:** 1st
Date: 4/5/18	**State:** MD	**Photos:** Upstream, downstream	
Crew: WT BS	**County:** MoCo	**Last Flag Number:** No changes to stream polygons	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round) ○ RPW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands ○ Non-RPW erosional feature ○ Non-RPW with abutting wetland ○ Non-RPW with adjacent wetland ○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: BASE Flow observed During Field Investigation Drains SWM Pond 28-SWM2

Hydrologic Connectivity –	Upstream: SWM Pond	Downstream: Muddy Branch (29B)	Adjacent/Abutting: 29-SWM5

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☒ Natural Channel Shape	Width: 4'	☒ Silts	☒ Sands	☐ Muck	RB: Forest
☐ Artificial (man-made)	Depth: 3'	☒ Cobbles	☐ Gravel	☒ Other: Rip Rap	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forest
☒ Other: Piped	Moderate	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Rip Rap placed in Channel north of I-370.

Weather/Precipitation Conditions:

During Field Visit		Inches of Rain Within Last Week		Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php					Month: March Year: 2018								
☒	No rain	☒	0-0.5	○	○	○	○	○	■	○	☒	○	○	○	○	○	
○	Light rain	○	0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	
○	Heavy Rain	○	>1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☒ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study	**Feature ID:** 29E	**Stream Order:** 1st
Date: 4/26/18 **State:** MD	**Photos:** Upstream, Downstream	
Crew: WT, RS **County:** Montgomery	**Last Flag Number:** 29E-1A / 29E-1B	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Base flow observed during field investigation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 29-SWM1	Downstream: 29C	Adjacent/Abutting: 29G

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 5'	☑ Silts	☐ Sands	☐ Muck	RB: Scrub shrub/forest
☐ Artificial (man-made)	Depth: 1'	☑ Cobbles	☑ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Scrub shrub/forest
☐ Other:	Minor erosion/good stability	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes: Drains SWM facility					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	◉	○	○	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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			
☑ 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/debris	☐ Observed/predicted flow events	
	☑ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:
Notes:		

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study	**Feature ID:** 29F	**Stream Order:** 1st
Date: 4/26/18 **State:** MD	**Photos:** Upstream, Downstream	
Crew: WT, RS **County:** Montgomery	**Last Flag Number:** 29F-9A / 29F-9B	

Final

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	○ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	◉ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: Base flow observed during field investigation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: 29-SWM1	Downstream: 29C	Adjacent/Abutting: 29G

Feature Description: ***(check all that apply)***

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☑ Natural Channel Shape	Width: 4'	☑ Silts	☑ Sands	☐ Muck	RB: Forest/emergent wetland
☐ Artificial (man-made)	Depth: 1'	☑ Cobbles	☐ Gravel	☑ Other:	
☑ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete	Rip rap	LB: Forest
☐ Other:	Minor erosion/good stability	Side slope: ☑ ≥1:1 ☐ 2:1 ☐ 3:1 ☐ ≤4:1			

Notes: Some rip rap placed at the downstream extent.

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php													Month: April	Year: 2018
◉ No rain	○ 0-0.5	○	○	○	○	○	○	○	○	○	◉	○	○	○	○	
○ Light rain	◉ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6		
○ Heavy Rain	○ >1	Severe Drought			Moderate Drought		Normal			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		
☑ 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/debris	☐ Observed/predicted flow events
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery Sampling Date: 5/15/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 29G-WET
Investigator(s): RS, NC Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.130935 Long: -77.205250 Datum: NAD83
Soil Map Unit Name: Baile silt loam 0 to 3 percent slopes (6A) NWI classification: PEMIB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes [✓] No [ ]
Hydric Soil Present? Yes [✓] No [ ]
Wetland Hydrology Present? Yes [✓] No [ ]

Is the Sampled Area within a Wetland? Yes [✓] No [ ]

Remarks:
29G is located southeast of 29-Swm1 along the left bank of 29E

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [✓] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes [ ] No [✓] Depth (inches): ____
Water Table Present? Yes [✓] No [ ] Depth (inches): 4"
Saturation Present? (includes capillary fringe) Yes [✓] No [ ] Depth (inches): 4"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
29G receives hydrology from 29-Swm1 and overflow from 29E

Photos: 29G-J-UPL
29G-WET

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 296-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30 ft)			
1. Salix nigra	15	Y	OBL
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 7.5 20% of total cover: 3

Herb Stratum (Plot size: 30 ft)			
1. Impatiens capensis	30	Y	FACW
2. Leersia oryzoides	20	Y	OBL
3. Boehmeria cylindrica	10	N	FACW
4. Viola aestivalis	5	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		

50% of total cover: 32.5 20% of total cover: 13

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 296-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	80	7.5YR 4/6	20	C	M	Sandy clay loam	
6-12	10YR 3/2	100					Sandy clay loam	Saturated
12-20	10YR 5/2	100					Sandy clay	Saturated

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.02 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use I-270, Forested upland Distance to nearest roadway or other development 45 ft

Dominant wetland systems present PEM1B Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 296

Latitude 39.130395 Longitude -77.205250

Prepared by: RS Date 5/15/18

Wetland Impact:
Type N/A Area NA

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	Y			
Wildlife Habitat	Y			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery Sampling Date: 5/15/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 296/295-UPL
Investigator(s): RS NL Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): Convex Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.130823 Long: -77.205 066 Datum: NAD83
Soil Map Unit Name: Baile Silt loam 0 to 3 percent slopes (6A) NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ] Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]
Are Vegetation [ ] Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [X]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [X]	
Wetland Hydrology Present?	Yes [ ]	No [X]	

Remarks:
295/296-UPL is located northeast of 29E and northwest of 29C
Area is an herbaceous area with upland vegetation and no wetland hydrology

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] True Aquatic Plants (B14)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology observed.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 296/295 - UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft)			
1. Ulmus rubra	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft)			
1. Lonicera japonica	20	Y	FACU
2. Vitis aestivalis	15	Y	FACU
3. Potentilla indica	15	Y	FACU
4. Ipomoea pandurata	10	N	FACU
5. Lesopedeza cuneata	5	N	FACU
6. Stachys tenuifolia	5	N	FACW
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 29 6/29 - UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/4	100					SiLt loam	
4-20	10YR 4/6	95	10YR 5/8	5	C	M	SiLt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Final

Waters of the U.S. Data Sheet

Project: I495/I270 Managed Lanes Study		**Feature ID:** 29[redacted] H	**Stream Order:** 1st
Date: 4/26/18	**State:** Montgomery MD	**Photos:** UPSTREAM Downstream	
Crew: WT, KS	**County:**	**Last Flag Number:** No changes to stream polygon	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
Describe rational for hydrologic class: BASE Flow observed During Field Investigation			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Hydrologic Connectivity –	Upstream: SWM inlet	Downstream: 29C / unnamed trib to Muddy Branch	Adjacent/Abutting: 29C

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate				Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 6'	☒ Silts	☐ Sands	☐ Muck		RB: MAINTAINED/Mowed
☐ Artificial (man-made)	Depth: 2'	☐ Cobbles	☒ Gravel	☐ Other:		
☒ Manipulated (man-altered)	Bank Erosion/stability: NONE observed	☐ Bedrock	☐ Concrete	Rip Rap		LB: MAINTAINED/Mowed
☐ Other:		Side slope: ☐ ≥1:1	☒ 2:1	☐ 3:1	☐ ≤4:1	

Notes: Plunge Pool @ OUTFALL

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week
☒ No rain	○ 0-0.5
○ Light rain	☒ 0.5-1
○ Heavy Rain	○ >1

Monthly Drought Condition
NCDC Regional PDSI Month: April Year: 2018
http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php

○ -6	○ -5	○ -4	○ -3	○ -2	● -1	○ 0	○ 1	☒ 2	○ 3	○ 4	○ 5	○ 6
Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: I495/I270 Managed Lanes Study City/County: Montgomery Sampling Date: 5/15/18
Applicant/Owner: Maryland State Highway Administration State: MD Sampling Point: 29J-WET
Investigator(s): BS ML Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR S MLRA 148 Lat: 39.130600 Long: -77.204970 Datum: NAD83
Soil Map Unit Name: Baile silt loam 0 to 3 percent slopes (6A) NWI classification: PEMIA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
29J is located between 29C and 29F

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): _____
Water Table Present?	Yes ☐	No ☑	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
29J receives hydrology from overflow from 29C and 29F

29J photos: 29J-WET
29GJ-UPL

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: 29J-WET

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus Occidentalis	5	Y	FACW
2. Quercus phellos	5	Y	FAC
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Sapling Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30 ft)			
1. Impatiens capensis	40	Y	FACW
2. Boehmeria cylindrica	15	Y	FACW
3. Galium palustre	15	Y	OBL
4. Vitis aestivalis	5	N	FACU
5. Ipomea pandurata	5	N	FACU
6. Acer negundo	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		

50% of total cover: 42.5 20% of total cover: 17

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Other species observed; Lindera benzoin, Acer rubrum

SOIL Sampling Point: 29J-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	85	10YR 4/6	15	C	M	clay loam	
10-20	10YR 3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Wetland Function-Value Evaluation Form

Total area of wetland 0.11 Ac Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Forested Distance to nearest roadway or other development 46 Ft

Dominant wetland systems present PEMIA Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 295

Latitude 39.130600 Longitude -77.204970

Prepared by: RS Date 5/15/18

Wetland Impact:
Type NA Area NA

Evaluation based on:
Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y			
Floodflow Alteration	Y			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y			
Nutrient Removal	Y			
Production Export	N			
Sediment/Shoreline Stabilization	Y			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other	—			

Notes:

* Refer to backup list of numbered considerations.

Final

Waters of the U.S. Data Sheet

Project: I-495/I-270 Managed Lane Study		**Feature ID:** 29K	**Stream Order:** 1st
Date: 5/14/18	**State:** MD	**Photos:** Upstream / Downstream	
Crew: NL, NC	**County:** Montgomery	**Last Flag Number:** 29K-1A to 6A; 29K-1B to 6B	

Feature Hydrologic Class (check one):

Tidal	Perennial	Intermittent	Ephemeral
○ TNW (Subject to ebb and flow)	○ TNW – Perennial (Flowing year round)	☒ RPW – Seasonal (must flow at least 3 months a year)	○ Non-RPW draining uplands
	○ RPW – Perennial (Flowing year round)		○ Non-RPW erosional feature
			○ Non-RPW with abutting wetland
			○ Non-RPW with adjacent wetland
			○ Non-RPW wetland adjacent or abutting upstream (outside of study area)

Describe rational for hydrologic class: Base flow of water observed during field investigation

Hydrologic Connectivity –	Upstream: SWM Facily 28-SWM3	Downstream: Unnamed Tributary to Middle Branch → Located out of study area	Adjacent/Abutting: 29-SWM3

Feature Description: *(check all that apply)*

Shape (with respect to OHW)		Substrate			Vegetation Cover Type (MBSS)
☐ Natural Channel Shape	Width: 3'	☒ Silts	☐ Sands	☐ Muck	RB: Forested
☒ Artificial (man-made)	Depth: 6"	☐ Cobbles	☐ Gravel	☐ Other:	
☐ Manipulated (man-altered)	Bank Erosion/stability:	☐ Bedrock	☐ Concrete		LB: Forested
☐ Other:	No erosion; Stable banks	Side slope: ☐ ≥1:1 ☒ 2:1 ☐ 3:1 ☐ ≤4:1			
Notes:					

Weather/Precipitation Conditions:

During Field Visit	Inches of Rain Within Last Week	Monthly Drought Condition NCDC Regional PDSI (http://www.ncdc.noaa.gov/temps-and-precip/climatological-rankings/index.php) Month: May Year: 2018												
○ No rain	☒ 0-0.5	○	○	○	○	○	☒	○	☒	○	○	○	○	○
☒ Light rain	○ 0.5-1	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
○ Heavy Rain	☒ >1	Severe Drought			Moderate Drought		Normal			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			
☒ 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/debris	☐ Observed/predicted flow events	
	☐ Vegetation matted down, bent, or absent	☐ Destruction of terrestrial veg.	☐ 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:

Notes: