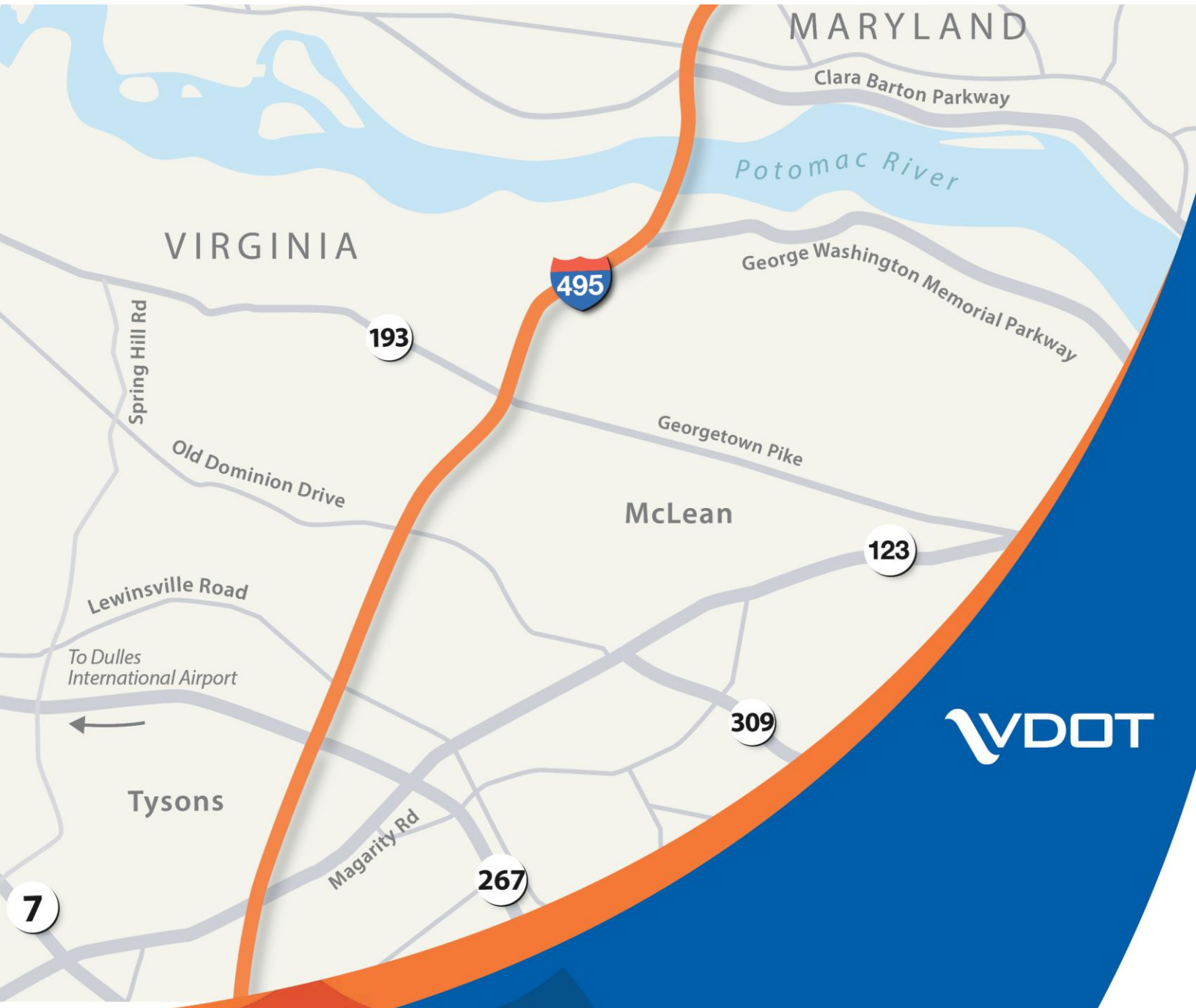

ENVIRONMENTAL ASSESSMENT

Natural Resources Technical Report Appendices

February 2020

VDOT

495 ExpressLanes
NORTHERN EXTENSION

Appendix A: Water Resources Database Results and Mapping

- ***Waters of the US Maps***
- ***USACE Wetland Dataforms***
- ***USACE USM Dataforms***
- ***Photolog***
- ***VDEQ Water Supply Map***

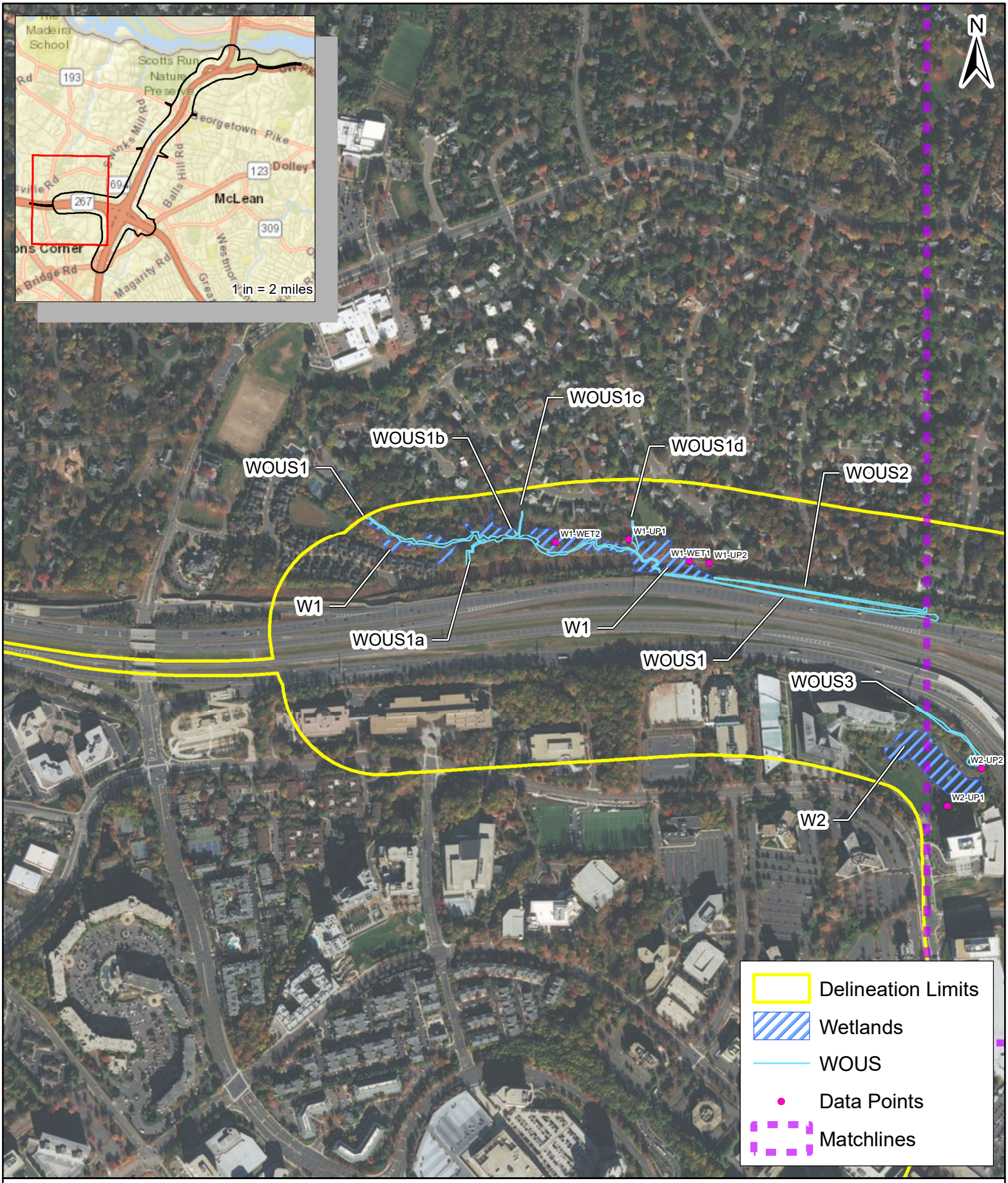

Figure 7A - Jurisdictional Features
I-495 NEXT
Fairfax County, VA
September 2019

495 ExpressLanes NORTHERN EXTENSION

0 750 1,500 Feet

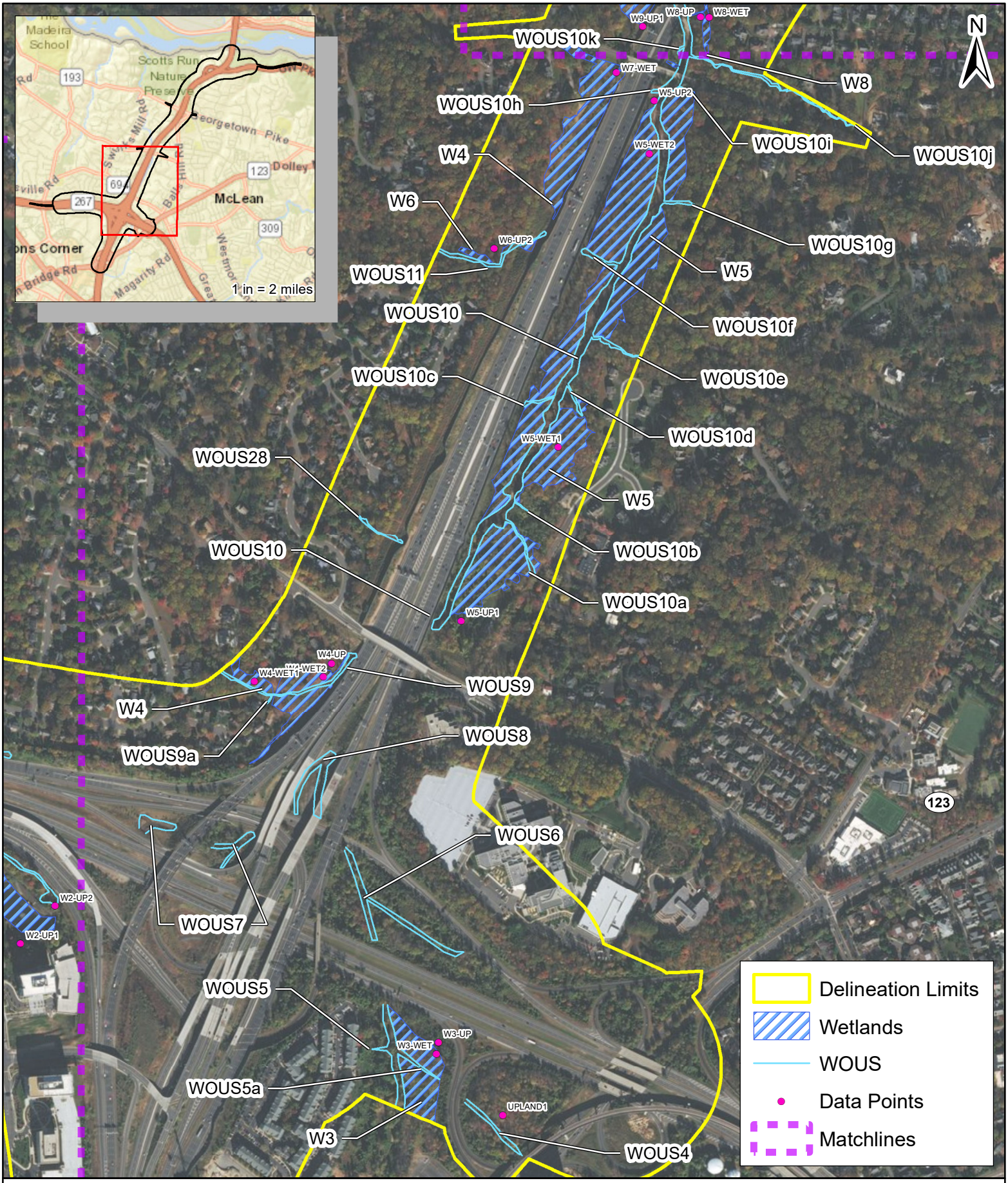

Figure 7B - Jurisdictional Features
I-495 NEXT
Fairfax County, VA
September 2019

495 ExpressLanes NORTHERN EXTENSION

0 750 1,500 Feet

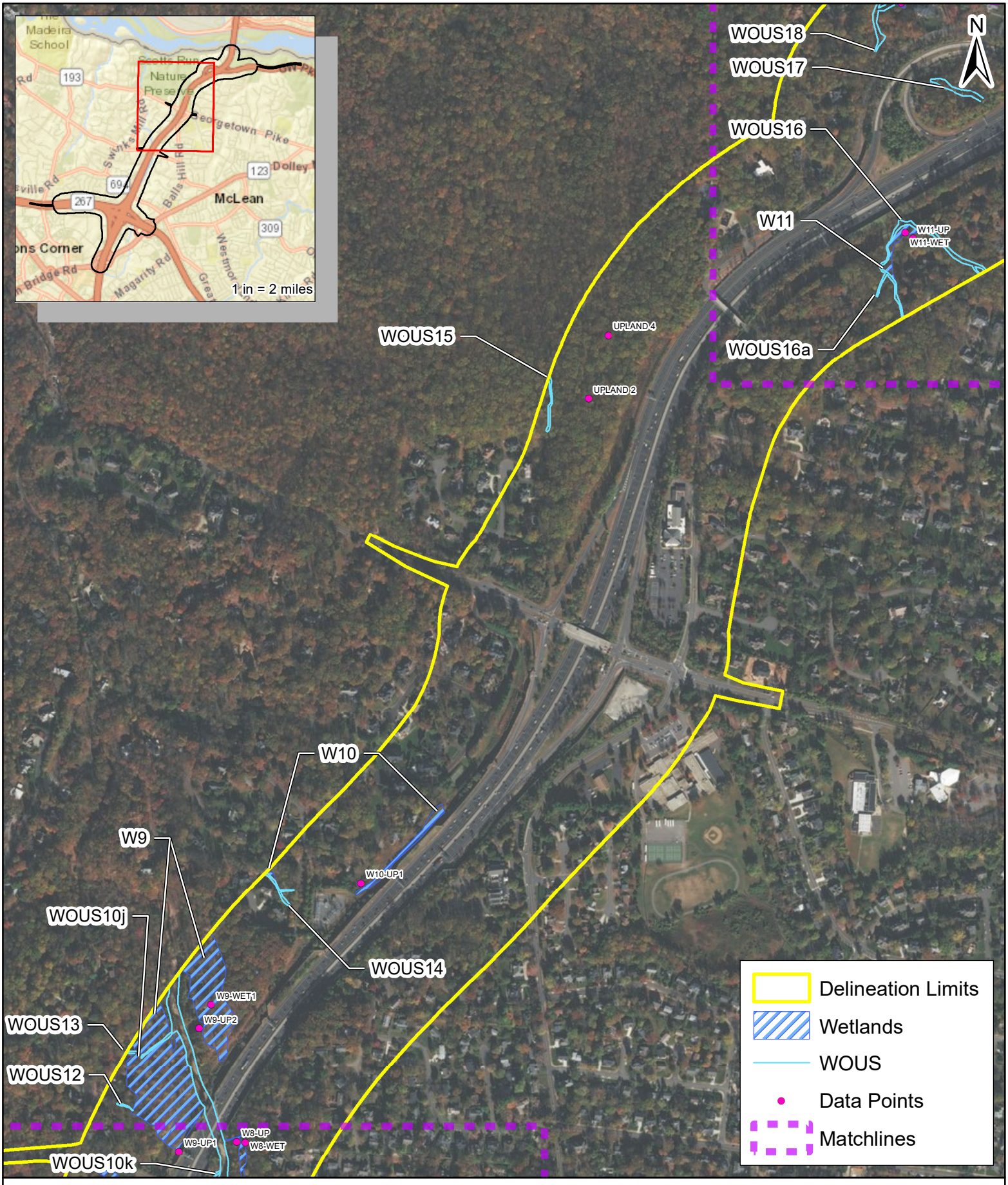

Figure 7C - Jurisdictional Features
I-495 NEXT
Fairfax County, VA
September 2019

495 ExpressLanes NORTHERN EXTENSION

0 750 1,500 Feet

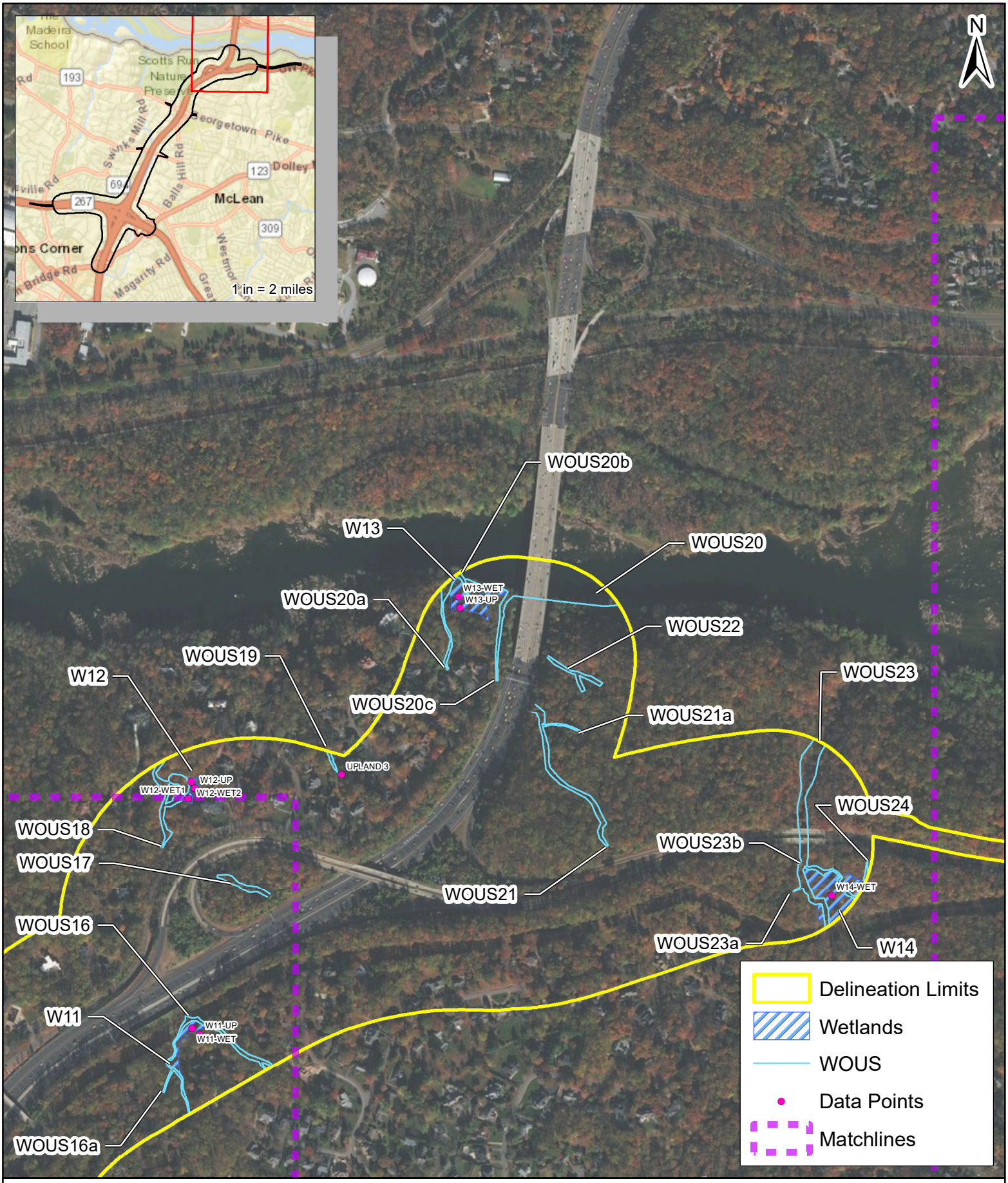

Figure 7D - Jurisdictional Features
I-495 NEXT
Fairfax County, VA
September 2019

495 ExpressLanes NORTHERN EXTENSION

0 750 1,500 Feet

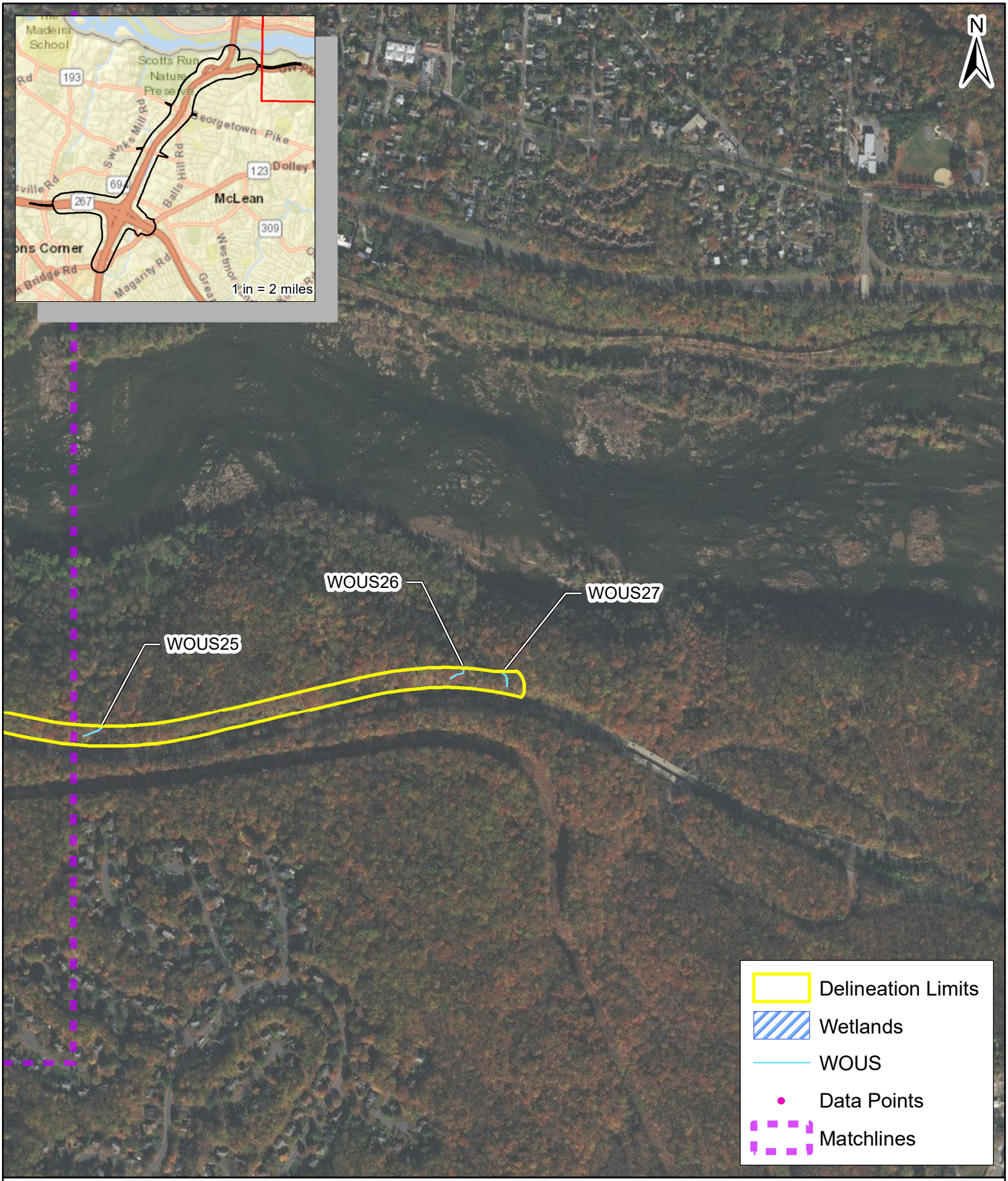

Figure 7E - Jurisdictional Features
I-495 NEXT
Fairfax County, VA
September 2019

495 ExpressLanes NORTHERN EXTENSION

0 750 1,500 Feet

Kimley»Horn

Project: I-405 NEXT
Sampling Date: 9/16/2019
Sampling Point: W1-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/16/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W1-WET1
Investigator:	KRJ/SHS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	Concave		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.935257	-77.221511	Datum:	NAD83
Soil Map Unit Name:	Codorus and Hatboro soils, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	Yes				
Hydric soils Present?	Yes		**Is this Sampling Point within a Wetland?**		**Yes**
Wetland Hydrology Present?	Yes				
Remarks:	Point taken between park and interstate sound wall in small depression.				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)	X	Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)	X	Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	X
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	Yes	Depth (inches):	12			
Saturation Present?	Yes	Depth (inches):	8			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
N/A				# Dominant Species OBL, FACW, FAC:	1
				# of Dominant Species Across All Strata:	1
				Percent Dominant Species OBL, FACW, FAC:	100
	0	= Total Cover			
	50% of Total Cover =		0		
50/20 Thresholds:	20% of Total Cover =		0		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Kimley»Horn

Project: I-405 NEXT
Sampling Date: 9/16/2019
Sampling Point: W1-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
N/A			
	0	= Total Cover	
	50% of Total Cover =		*0*
50/20 Thresholds:	20% of Total Cover =		*0*

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
Leersia oryzoides	60	yes	*OBL*
Zizaniopsis miliacea	10	no	*OBL*
Carex typhina	10	no	*FACW*
	80	= Total Cover	
	50% of Total Cover =		*40*
50/20 Thresholds:	20% of Total Cover =		*16*

Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status
N/A			
	0	= Total Cover	
	50% of Total Cover =		*0*
50/20 Thresholds:	20% of Total Cover =		*0*

Hydrophytic Vegetation Indicators:

1 - Rapid Test	No
2 - Dominance Test is >50%	Yes
3 - Prevalence Index is ≤ 3.0	
4 - Problematic Hydrophytic Vegetation	No

Definitions of Vegetation Strata:

Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Sapling:	20 ft or more in height, less than 3 in DBH
Shrub:	3-20 ft in height
Herb:	less than 3 ft in height
Vine:	all woody vines

Hydrophytic Vegetation Present: **Yes**

Remarks: Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-3	10YR 3/1	100					Sandy loam
3-8	10YR 4/1	70	7.5YR 5/8	30	C	M	Sandy clay loam
8-18	10YR 5/1	80	10YR 5/8	20	C	M	Clay loam
18-24	10YR 6/1	60	10YR 4/8	40	C	M	Clay loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soils Present: **Yes**

Remarks:

Kimley»Horn

Project: I-405 NEXT
Sampling Date: 8/7/2018
Sampling Point: W1-WET2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	8/7/2018
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W1-WET2
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Concave		Slope (%):	5
Subregion:	LRR P	Lat/Long:	38.9355	-77.2225	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			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:	Point taken between park and interstate sound wall in small depression.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)		X	Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)	X	Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	Yes	Depth (inches):	12			
Saturation Present?	Yes	Depth (inches):	8			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	60	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	5
				# of Dominant Species Across All Strata:	5
				Percent Dominant Species OBL, FACW, FAC:	100
	60	= Total Cover			
	50% of Total Cover =		30		
50/20 Thresholds:	20% of Total Cover =		12		

Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
Liquidambar styraciflua	10	yes	*FAC*
Acer rubrum	5	yes	*FAC*
	15	= Total Cover	
	50% of Total Cover =		*7.5*
50/20 Thresholds:	20% of Total Cover =		*3*

Kimley»Horn

Project: I-405 NEXT
Sampling Date: 8/7/2018
Sampling Point: W1-WET2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
Lindera benzoin	20	yes	*FAC*
	20	= Total Cover	
	50% of Total Cover =		*10*
50/20 Thresholds:	20% of Total Cover =		*4*

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
Microstegium vimineum	70	yes	*FAC*
Osmundastrum cinnamomeum	10	no	*FACW*
Lindera benzoin	10	no	*FAC*
Smilax rotundifolia	5	no	*FAC*
Festuca rubra	5	no	*FACU*
	100	= Total Cover	
	50% of Total Cover =		*50*
50/20 Thresholds:	20% of Total Cover =		*20*

Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status
N/A			
	0	= Total Cover	
	50% of Total Cover =		*0*
50/20 Thresholds:	20% of Total Cover =		*0*

Hydrophytic Vegetation Indicators:	
1 - Rapid Test	No
2 - Dominance Test is >50%	Yes
3 - Prevalence Index is ≤ 3.0	
4 - Problematic Hydrophytic Vegetation	No

Definitions of Vegetation Strata:	
Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Sapling:	20 ft or more in height, less than 3 in DBH
Shrub:	3-20 ft in height
Herb:	less than 3 ft in height
Vine:	all woody vines

Hydrophytic Vegetation Present:	Yes

Remarks: Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-3	10YR 4/3	100					Sandy clay loam
3-14	10YR 4/1	80	10YR 4/6	20	C	M	Sandy clay loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):		Hydric Soils Present:	Yes
Type:			
Depth (inches):			

Remarks:

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W1-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/16/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W1-UP1
Investigator:	KRJ/SHS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	2-4%
Subregion:	LRR P	Lat/Long:	38.935638	-77.222794	Datum:	NAD83
Soil Map Unit Name:	Wheaton-Sumerduck complex, 2 to 7 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes			
Hydric soils Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Wetland Hydrology Present?	No			
Remarks:	Point taken just outside and upslope of existing wetland line. Adjacent to stream.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	30	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	3
Prunus avium	5	no	*UPL*	# of Dominant Species Across All Strata:	4
				Percent Dominant Species OBL, FACW, FAC:	75
	35	= Total Cover			
	50% of Total Cover =		18		
50/20 Thresholds:	20% of Total Cover =		7		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W1-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	15	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	15	= Total Cover			
	50% of Total Cover =		*7.5*		
50/20 Thresholds:	20% of Total Cover =		*3*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	60	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	60	= Total Cover			
	50% of Total Cover =		*30*		
50/20 Thresholds:	20% of Total Cover =		*12*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Rubus phoenicolasius	40	yes	*FACU*		
	40	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*20*		
50/20 Thresholds:	20% of Total Cover =		*8*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-24+	7.5YR 5/6	90	5YR 5/8	10	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:	

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W1-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION								
Project # & Site:	I-495 NEXT		City/County:	Fairfax County		Date:	9/16/2019	
Applicant/Owner:	VDOT		State:	Virginia		Sampling Point:	W1-UP2	
Investigator:	KRJ/SHS		Section/Township/Range:					
Landform:	Hillslope		Local Relief:	Convex		Slope (%):	2-4%	
Subregion:	LRR P		Lat/Long:			Datum:	NAD83	
Soil Map Unit Name:	Wheaton-Glenelg complex, 7 to 15 percent slopes					NWI Classification:	N/A	
Are climatic/hydrologic conditions on the site typical for this time of year?				Yes				
Are "Normal Circumstances" present?				Yes				
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?		
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?		

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**		**No**
Hydric soils Present?	No				
Wetland Hydrology Present?	No				
Remarks:	Point taken within powerline easement between houses and interstate. Slight upslope from wetland.				

HYDROLOGY							
Wetland Hydrology Indicators:					**Secondary Indicators :**		
Primary Indicators :					Surface Soil Cracks (B6)		
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)		
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)		
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)		
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)		
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)		
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)		
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)		
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)		
Field Observations:							
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**			**No**
Water Table Present?	No	Depth (inches):					
Saturation Present?	No	Depth (inches):					
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):							
Remarks:							

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
N/A				# Dominant Species OBL, FACW, FAC:	2
				# of Dominant Species Across All Strata:	3
				Percent Dominant Species OBL, FACW, FAC:	67
	0	= Total Cover			
	50% of Total Cover =		0		
50/20 Thresholds:	20% of Total Cover =		0		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

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Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W1-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Verbesina alternifolia	25	yes	*FAC*	1 - Rapid Test	No
Phytolacca americana	5	no	*FACU*	2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Eupatorium serotinum	25	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Rubus argutus	20	yes	*FACU*	Sapling:	20 ft or more in height, less than 3 in DBH
Verbesina alternifolia	10	no	*FAC*	Shrub:	3-20 ft in height
Microstegium vimineum	10	no	*FAC*	Herb:	less than 3 ft in height
				Vine:	all woody vines
	65	= Total Cover			
	50% of Total Cover =		*32.5*		
50/20 Thresholds:	20% of Total Cover =		*13*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-8	7.5YR 5/3	40	7.5YR 8/1	10	D	M	Sandy loam
	7.5YR 4/2	40	7.5YR 5/6	10	C	M	Sandy loam
8-24+	7.5YR 5/3	70	7.5YR 8/1	10	D	M	Sandy loam
	7.5YR 4/2	15	7.5YR 5/6	5	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:	Small rocks throughout sample, might be fill from roadway.

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W2-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/16/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W2-UP1
Investigator:	KRJ/SHS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	5-7%
Subregion:	LRR P	Lat/Long:	38.931152	-77.216129	Datum:	NAD83
Soil Map Unit Name:	Wheaton loam, 2 to 25 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken above stormwater pond and stormwater drainage swale.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION						
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**		
Acer rubrum	30	yes	*FAC*	# Dominant Species OBL, FACW, FAC:		1
Cercis canadensis	15	yes	*FACU*	# of Dominant Species Across All Strata:		4
Diospyros virginiana	10	no	*FAC*	Percent Dominant Species OBL, FACW, FAC:		25
Robinia pseudoacacia	10	no	*FACU*			
Platanus occidentalis	10	no	*FACW*			
	75	= Total Cover				
	50% of Total Cover =		38			
50/20 Thresholds:	20% of Total Cover =		15			
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**		
N/A				Total Percent Cover of:		
				OBL	0 x1	0
				FACW	10 x2	20
				FAC	40 x3	120
				FACU	30 x4	120
	0	= Total Cover		UPL	0 x5	0
	50% of Total Cover =		*0*	Total	80	260
50/20 Thresholds:	20% of Total Cover =		*0*	PI =	3.3	

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Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W2-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lonicera maackii	10	yes	*UPL*	1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	10	= Total Cover			
	50% of Total Cover =		*5*		
50/20 Thresholds:	20% of Total Cover =		*2*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
N/A				Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Parthenocissus quinquefolia	5	yes	*FACU*		
	5	= Total Cover			
	50% of Total Cover =		*2.5*	**Hydrophytic Vegetation Present:**	**No**
50/20 Thresholds:	20% of Total Cover =		*1*		

Remarks:	

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-6	7.5YR 5/6	100					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**No**
Depth (inches):	6		

Remarks:	Hit rock restrictive layer at 6 inches. 1-2 inch rocks throughout sample.

Kimley»Horn

Project: I-495
Sampling Date: 9/16/2019
Sampling Point: W2-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION								
Project # & Site:	I-495 NEXT		City/County:	Fairfax County			Date:	9/16/2019
Applicant/Owner:	VDOT		State:	Virginia			Sampling Point:	W2-UP2
Investigator:	KRJ/SHS		Section/Township/Range:					
Landform:	Level or Nearly Level		Local Relief:	None			Slope (%):	0-2%
Subregion:	LRR P		Lat/Long:	38.931763	-77.215386		Datum:	NAD83
Soil Map Unit Name:	Glenelg silt loam, 15 to 25 percent slopes						NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?				Yes				
Are "Normal Circumstances" present?				Yes				
Are Vegetation	No	Soils	No	or Hydrology	No		significantly disturbed?	
Are Vegetation	No	Soils	No	or Hydrology	No		naturally problematic?	

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	No				
Hydric soils Present?	No		**Is this Sampling Point within a Wetland?**		**No**
Wetland Hydrology Present?	No				
Remarks:	Point taken between stormwater conveyance and stormwater pond. Hydrology is influenced by paved path upslope from the point.				

HYDROLOGY							
Wetland Hydrology Indicators:					**Secondary Indicators :**		
Primary Indicators :					Surface Soil Cracks (B6)		
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)		
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)		
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)		
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)		
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)		
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)		
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)		
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)		
Field Observations:							
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**			**No**
Water Table Present?	No	Depth (inches):					
Saturation Present?	No	Depth (inches):					
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):							
Remarks:							

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Fraxinus pennsylvanica	30	yes	*FACW*	# Dominant Species OBL, FACW, FAC:			5
Acer rubrum	30	yes	*FAC*	# of Dominant Species Across All Strata:			10
				Percent Dominant Species OBL, FACW, FAC:			50
	60	= Total Cover					
	50% of Total Cover =		30				
50/20 Thresholds:	20% of Total Cover =		12				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Diospyros virginiana	15	yes	*FAC*	Total Percent Cover of:			
Prunus serotina	5	yes	*FACU*	OBL	0	x1	0
				FACW	30	x2	60
				FAC	80	x3	240
				FACU	35	x4	140
	20	= Total Cover		UPL	10	x5	50
	50% of Total Cover =		*10*	Total	155		490
50/20 Thresholds:	20% of Total Cover =		*4*	PI =	3.2		

Kimley»Horn

Project: I-495
Sampling Date: 9/16/2019
Sampling Point: W2-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lonicera maackii	20	yes	*UPL*	1 - Rapid Test	No
Diospyros virginiana	15	yes	*FAC*	2 - Dominance Test is >50%	No
Robinia pseudoacacia	10	yes	*FACU*	3 - Prevalence Index is ≤ 3.0	No
Elaeagnus umbellata	5	no	*UPL*	4 - Problematic Hydrophytic Vegetation	No
	50	= Total Cover			
	50% of Total Cover =		*25*		
50/20 Thresholds:	20% of Total Cover =		*10*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
N/A				Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Toxicodendron radicans	20	yes	*FAC*		
Parthenocissus quinquefolia	10	yes	*FACU*		
Hedera helix	10	yes	*FACU*		
	40	= Total Cover			
	50% of Total Cover =		*20*	**Hydrophytic Vegetation Present:**	**No**
50/20 Thresholds:	20% of Total Cover =		*8*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-15	7.5YR 4/6	100					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**No**
Depth (inches):	15		

Remarks: Restrictive rock layer at 15 inches, rocks throughout sample.

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W3-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/16/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W3-WET
Investigator:	KRJ/SHS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	None		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.929234	-77.207357	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:	Point taken in floodplain, just off toe of slope leading to interstate.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	X
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	30	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	7
Ulmus americana	20	yes	*FACW*	# of Dominant Species Across All Strata:	8
				Percent Dominant Species OBL, FACW, FAC:	88
	50	= Total Cover			
	50% of Total Cover =		25		
50/20 Thresholds:	20% of Total Cover =		10		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Fraxinus pennsylvanica	15	yes	*FACW*		
Acer saccharum	5	yes	*FACU*		
	20	= Total Cover			
	50% of Total Cover =		*10*		
50/20 Thresholds:	20% of Total Cover =		*4*		

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Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W3-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
Liquidambar styraciflua	5	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	5	= Total Cover			
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:	
Onoclea sensibilis	20	yes	*FACW*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Microstegium vimineum	20	yes	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Eupatorium serotinum	5	no	*FAC*	Shrub:	3-20 ft in height
Juncus effusus	5	no	*FACW*	Herb:	less than 3 ft in height
Lycopus americanus	5	no	*OBL*	Vine:	all woody vines
	55	= Total Cover			
	50% of Total Cover =		*27.5*		
50/20 Thresholds:	20% of Total Cover =		*11*		

Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status		
Toxicodendron radicans	50	yes	*FAC*		
Vitis aestivalis	10	no	*FACU*		
	60	= Total Cover			
	50% of Total Cover =		*30*	**Hydrophytic Vegetation Present:**	**Yes**
50/20 Thresholds:	20% of Total Cover =		*12*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-4	7.5YR 4/2	80	5YR 5/8	20	C	M	Loamy clay
4-8	7.5YR 4/2	50	5YR 5/8	50	C	M	Loamy clay
8-12	7.5YR 5/4	80	2.5Y 6/1	20	D	M	Loamy clay
12-24+	7.5YR 4/3	80	2.5Y 6/1	15	D	M	Loamy clay
			2.5YR 4/8	5	C	M	Loamy clay

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	

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Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W3-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/16/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W3-UP
Investigator:	KRJ/SHS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	8-10%
Subregion:	LRR P	Lat/Long:	38.929422	-77.207308	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes			
Hydric soils Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Wetland Hydrology Present?	No			
Remarks:	Point taken on severe slope with thick vegetation. Slope continues upwards to highway.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
N/A				# Dominant Species OBL, FACW, FAC:	3
				# of Dominant Species Across All Strata:	4
				Percent Dominant Species OBL, FACW, FAC:	75
	0	= Total Cover			
	50% of Total Cover =		0		
50/20 Thresholds:	20% of Total Cover =		0		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Viburnum dentatum	15	yes	*FAC*		
Diospyros virginiana	15	yes	*FAC*		
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

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Project: I-495 NEXT
Sampling Date: 9/16/2019
Sampling Point: W3-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
N/A				1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Rubus pensilvanicus	15	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	15	= Total Cover			
	50% of Total Cover =		*7.5*		
50/20 Thresholds:	20% of Total Cover =		*3*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Vitis aestivalis	70	yes	*FACU*		
	70	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*35*		
50/20 Thresholds:	20% of Total Cover =		*14*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-10	7.5YR 5/6	100					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**No**
Depth (inches):	10		

Remarks:	Restrictive rock layer at 10 inches.

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Project: I-495 NEXT
Sampling Date: 8/9/2018
Sampling Point: W4-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	8/9/2018
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W4-WET1
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Concave		Slope (%):	2
Subregion:	LRR P	Lat/Long:	38.9355	-77.2103	Datum:	NAD83
Soil Map Unit Name:	Wheaton-Codorus complex, 0 to 2 percent slopes				NWI Classification:	PFO
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		X	Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	65	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	6
Ulmus americana	15	no	*FACW*	# of Dominant Species Across All Strata:	6
Liriodendron tulipifera	10	no	*FACU*	Percent Dominant Species OBL, FACW, FAC:	100
	90	= Total Cover			
	50% of Total Cover =		45		
50/20 Thresholds:	20% of Total Cover =		18		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Acer rubrum	15	yes	*FAC*		
Ulmus americana	5	yes	*FACW*		
	20	= Total Cover			
	50% of Total Cover =		*10*		
50/20 Thresholds:	20% of Total Cover =		*4*		

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Project: I-495 NEXT
Sampling Date: 8/9/2018
Sampling Point: W4-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	5	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	5	= Total Cover			
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	40	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Acer rubrum	25	yes	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Toxicodendron radicans	15	no	*FAC*	Shrub:	3-20 ft in height
Lonicera japonica	5	no	*FACU*	Herb:	less than 3 ft in height
Rosa multiflora	5	no	*FACU*		
Schedonorus arundinaceus	2	no	*FACU*	Vine:	all woody vines
	92	= Total Cover			
	50% of Total Cover =		*46*		
50/20 Thresholds:	20% of Total Cover =		*18.4*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*	**Hydrophytic Vegetation Present:**	**Yes**
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-4	10YR 4/2	90	5YR 5/6	10	C	M	Silty clay loam
4-12	10YR 5/1	85	5YR 4/6	15	C	M	Silty clay loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W4-WET2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W4-WET2
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	Concave		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.935503	-77.209636	Datum:	NAD83
Soil Map Unit Name:	Wheaton-Codorus complex, 0 to 2 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:	Point taken upslope from stream.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	X
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
N/A				# Dominant Species OBL, FACW, FAC:	3
				# of Dominant Species Across All Strata:	4
				Percent Dominant Species OBL, FACW, FAC:	75
	0	= Total Cover			
	50% of Total Cover =		0		
50/20 Thresholds:	20% of Total Cover =		0		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W4-WET2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Typha domingensis	10	Yes	*OBL*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	10	= Total Cover			
	50% of Total Cover =		*5*		
50/20 Thresholds:	20% of Total Cover =		*2*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Leersia oryzoides	50	Yes	*OBL*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Euthamia graminifolia	10	No	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Juncus effusus	10	No	*FACW*	Shrub:	3-20 ft in height
Verbena hastata	5	No	*FACW*	Herb:	less than 3 ft in height
				Vine:	all woody vines
	75	= Total Cover			
	50% of Total Cover =		*37.5*		
50/20 Thresholds:	20% of Total Cover =		*15*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Persicaria sagittata	30	Yes	*OBL*		
Rubus argutus	20	Yes	*FACU*		
Vitis rotundifolia	10	No	*FAC*		
	60	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*30*		
50/20 Thresholds:	20% of Total Cover =		*12*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-6	7.5YR 4/2	80	2.5YR 3/6	20	PL	M	Loamy clay
6-12	7.5YR 4/3	70	2.5YR 3/6	30	C	M	Loamy clay

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**Yes**
Depth (inches):	12		

Remarks:	Rocks throughout sample.

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W4-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W4-UP
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	Concave		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.935725	-77.209453	Datum:	NAD83
Soil Map Unit Name:	Wheaton-Codorus complex, 0 to 2 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken adjacent to WOUS, slightly upslope from wetland.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	20	Yes	*FAC*	# Dominant Species OBL, FACW, FAC:	5
				# of Dominant Species Across All Strata:	8
				Percent Dominant Species OBL, FACW, FAC:	63
	20	= Total Cover			
	50% of Total Cover =		10		
50/20 Thresholds:	20% of Total Cover =		4		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Robinia pseudoacacia	10	Yes	*FACU*		
	10	= Total Cover			
	50% of Total Cover =		*5*		
50/20 Thresholds:	20% of Total Cover =		*2*		

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W4-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Verbesina alternifolia	10	Yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	10	= Total Cover			
	50% of Total Cover =		*5*		
50/20 Thresholds:	20% of Total Cover =		*2*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Panicum hemitomon	30	Yes	*FACW*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Boehmeria cylindrica	5	No	*FACW*	Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	35	= Total Cover			
	50% of Total Cover =		*17.5*		
50/20 Thresholds:	20% of Total Cover =		*7*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Rubus argutus	20	Yes	*FACU*		
Persicaria sagittata	10	Yes	*OBL*		
Vitis aestivalis	10	Yes	*FACU*		
Polygonum perfoliatum	10	Yes	*FAC*		
	50	= Total Cover			
	50% of Total Cover =		*25*	**Hydrophytic Vegetation Present:**	**Yes**
50/20 Thresholds:	20% of Total Cover =		*10*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-24	7.5YR 6/6	100					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:	Rocks throughout sample.

Kimley»Horn

Project: I-495
Sampling Date: 8/15/2018
Sampling Point: W5-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION								
Project # & Site:	I-495 NEXT		City/County:	Fairfax County		Date:	8/15/2018	
Applicant/Owner:	VDOT		State:	Virginia		Sampling Point:	W5-WET1	
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer		Section/Township/Range:					
Landform:	Hillslope		Local Relief:	Concave		Slope (%):	2	
Subregion:	LRR P		Lat/Long:	38.9394	-77.2043	Datum:	NAD83	
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded					NWI Classification:	PFO	
Are climatic/hydrologic conditions on the site typical for this time of year?				Yes				
Are "Normal Circumstances" present?				Yes				
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?		
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?		

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)		X	Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)	X	Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		X	Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	50	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	6
Ulmus americana	25	yes	*FACW*	# of Dominant Species Across All Strata:	6
Fraxinus pennsylvanica	15	no	*FACW*	Percent Dominant Species OBL, FACW, FAC:	100
	90	= Total Cover			
	50% of Total Cover =		45		
50/20 Thresholds:	20% of Total Cover =		18		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Acer rubrum	10	yes	*FAC*		
Fraxinus pennsylvanica	5	yes	*FACW*		
	15	= Total Cover			
	50% of Total Cover =		*7.5*		
50/20 Thresholds:	20% of Total Cover =		*3*		

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Project: I-495
Sampling Date: 8/15/2018
Sampling Point: W5-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	25	yes	*FAC*	1 - Rapid Test	No
Acer rubrum	5	no	*FAC*	2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	70	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Smilax rotundifolia	10	no	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Parthenocissus quinquefolia	5	no	*FACU*	Shrub:	3-20 ft in height
Lonicera japonica	3	no	*FACU*	Herb:	less than 3 ft in height
Lindera benzoin	2	no	*FAC*	Vine:	all woody vines
	90	= Total Cover			
	50% of Total Cover =		*45*		
50/20 Thresholds:	20% of Total Cover =		*18*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-2	10YR 6/4	100					Silt loam
2-12	10YR 4/2	90	5YR 4/6	10	C	M	Silt loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			
Remarks:			

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W5-WET2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/17/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W5-WET2
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	None		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.944092	-77.202578	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	Yes				
Hydric soils Present?	Yes		**Is this Sampling Point within a Wetland?**		**Yes**
Wetland Hydrology Present?	Yes				
Remarks:	Point taken in floodplain of adjacent stream.				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	X
Surface Water (A1)		Water-stained Leaves (B9)		X	Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)	X	Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	X
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	30	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	5
				# of Dominant Species Across All Strata:	5
				Percent Dominant Species OBL, FACW, FAC:	100
	30	= Total Cover			
	50% of Total Cover =		15		
50/20 Thresholds:	20% of Total Cover =		6		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Carpinus caroliniana	30	yes	*FAC*		
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W5-WET2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Fraxinus pennsylvanica	20	yes	*FACW*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	20	= Total Cover			
	50% of Total Cover =		*10*		
50/20 Thresholds:	20% of Total Cover =		*4*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	20	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Polygonum hydropiperoides	15	yes	*OBL*	Sapling:	20 ft or more in height, less than 3 in DBH
Fraxinus pennsylvanica	5	no	*FACW*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	40	= Total Cover			
	50% of Total Cover =		*20*		
50/20 Thresholds:	20% of Total Cover =		*8*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Vitis aestivalis	5		*FACU*		
	5	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-15	7.5YR 6/2	60	5YR 5/8	40	C	M	Sandy loam
15-24	7.5YR 6/2	50	7.5YR 6/4	50	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W5-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/17/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W5-UP1
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	None		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.936395	-77.206697	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	No				
Hydric soils Present?	No		**Is this Sampling Point within a Wetland?**		**No**
Wetland Hydrology Present?	No				
Remarks:	Point taken between highway and residential area.				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION						
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**		
Platanus occidentalis	10	Yes	*FACW*	# Dominant Species OBL, FACW, FAC:		3
Liriodendron tulipifera	10	Yes	*FACU*	# of Dominant Species Across All Strata:		6
				Percent Dominant Species OBL, FACW, FAC:		50
	20	= Total Cover				
	50% of Total Cover =		10			
50/20 Thresholds:	20% of Total Cover =		4			
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**		
N/A				Total Percent Cover of:		
				OBL	0 x1	0
				FACW	10 x2	20
				FAC	60 x3	180
				FACU	80 x4	320
	0	= Total Cover		UPL	0 x5	0
	50% of Total Cover =		*0*	Total	150	520
50/20 Thresholds:	20% of Total Cover =		*0*	PI =	3.5	

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W5-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Verbesina alternifolia	20	Yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	20	= Total Cover			
	50% of Total Cover =		*10*		
50/20 Thresholds:	20% of Total Cover =		*4*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	40	Yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Rubus argutus	10	Yes	*FACU*	Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	50	= Total Cover			
	50% of Total Cover =		*25*		
50/20 Thresholds:	20% of Total Cover =		*10*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Vitis aestivalis	60	Yes	*FACU*		
	60	= Total Cover		**Hydrophytic Vegetation Present:**	**No**
	50% of Total Cover =		*30*		
50/20 Thresholds:	20% of Total Cover =		*12*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-12	10YR 5/4	100					Sandy loam
12-20	7.5YR 5/6	90	5YR 5/6	10	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**No**
Depth (inches):	20		
Remarks:	Rock layer at 20 inches.		

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W5-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/17/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W5-UP2
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	2-5%
Subregion:	LRR P	Lat/Long:	38.944959	-77.202455	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken on hillslope between interstate and stream.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:	No hydrology observed.					

VEGETATION						
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**		
Liriodendron tulipifera	10	yes	*FACU*	# Dominant Species OBL, FACW, FAC:		3
Platanus occidentalis	10	yes	*FACW*	# of Dominant Species Across All Strata:		10
Acer rubrum	10	yes	*FAC*	Percent Dominant Species OBL, FACW, FAC:		30
	30	= Total Cover				
	50% of Total Cover =		15			
50/20 Thresholds:	20% of Total Cover =		6			
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**		
Platanus occidentalis	15	yes	*FACW*	Total Percent Cover of:		
				OBL	0 x1	0
				FACW	25 x2	50
				FAC	15 x3	45
				FACU	85 x4	340
	15	= Total Cover		UPL	0 x5	0
	50% of Total Cover =		7.5	Total	125	435
50/20 Thresholds:	20% of Total Cover =		3	PI =	3.5	

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W5-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Juglans nigra	15	yes	*FACU*	1 - Rapid Test	No
Solidago canadensis	15	yes	*FACU*	2 - Dominance Test is >50%	No
Rosa multiflora	15	yes	*FACU*	3 - Prevalence Index is ≤ 3.0	No
Populus deltoides	5	no	*FAC*	4 - Problematic Hydrophytic Vegetation	No
	50	= Total Cover			
	50% of Total Cover =		*25*		
50/20 Thresholds:	20% of Total Cover =		*10*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Solidago canadensis	10	yes	*FACU*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	10	= Total Cover			
	50% of Total Cover =		*5*		
50/20 Thresholds:	20% of Total Cover =		*2*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Lonicera japonica	10	yes	*FACU*		
Vitis aestivalis	10	yes	*FACU*		
	20	= Total Cover			
	50% of Total Cover =		*10*	**Hydrophytic Vegetation Present:**	**No**
50/20 Thresholds:	20% of Total Cover =		*4*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-6	7.5YR 5/4	100					Sandy loam
6-12	7.5YR 5/6	100					Sandy loam
12-24	7.5YR 6/2	70	5YR 4/6	20			Sandy loam
			5YR 6/8	10			Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W6-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W6-UP
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	10-15%
Subregion:	LRR P	Lat/Long:	38.942557	-77.205887	Datum:	NAD83
Soil Map Unit Name:					NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS			
Hydrophytic Vegetation Present?	No	**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	Yes		
Wetland Hydrology Present?	No		
Remarks:	Point taken on a steep hillslope above adjacent stream.		

HYDROLOGY					
Wetland Hydrology Indicators:				**Secondary Indicators :**	
Primary Indicators :				Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)		Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)		Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)		Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)		Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)		Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		FAC-Neutral Test (D5)	
Field Observations:					
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**	**No**
Water Table Present?	No	Depth (inches):			
Saturation Present?	No	Depth (inches):			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):					
Remarks:	No hydrology indicators observed.				

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Liriodendron tulipifera	30	Yes	*FACU*	# Dominant Species OBL, FACW, FAC:			5
Acer rubrum	15	Yes	*FAC*	# of Dominant Species Across All Strata:			10
Carya ovalis	10	No	*FACU*	Percent Dominant Species OBL, FACW, FAC:			50
	55	= Total Cover					
	50% of Total Cover =		28				
50/20 Thresholds:	20% of Total Cover =		11				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Liriodendron tulipifera	15	Yes	*FACU*	Total Percent Cover of:			
Acer rubrum	10	Yes	*FAC*	OBL	0	x1	0
Ulmus americana	5	No	*FACW*	FACW	10	x2	20
				FAC	60	x3	180
				FACU	90	x4	360
	30	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*15*	Total	160		560
50/20 Thresholds:	20% of Total Cover =		*6*	PI =	3.5		

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W6-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Ulmus americana	5	Yes	*FACW*	1 - Rapid Test	No
Rubus phoenicolasius	5	Yes	*FACU*	2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	10	= Total Cover			
	50% of Total Cover =		*5*		
50/20 Thresholds:	20% of Total Cover =		*2*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	20	Yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Toxicodendron radicans	15	Yes	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	35	= Total Cover			
	50% of Total Cover =		*17.5*		
50/20 Thresholds:	20% of Total Cover =		*7*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Vitis aestivalis	15	Yes	*FACU*		
Lonicera japonica	15	Yes	*FACU*		
	30	= Total Cover			
	50% of Total Cover =		*15*	**Hydrophytic Vegetation Present:**	**No**
50/20 Thresholds:	20% of Total Cover =		*6*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-9	7.5YR 4/2	95	2.5YR 3/6	5	C	M	Silt loam
9-18	7.5YR 6/6	90	2.5YR 4/6	10	C	M	Silt loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**Yes**
Depth (inches):	18		

Remarks: Restrictive layer at 18 inches.

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W7-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/17/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W7-WET
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	None		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.945444	-77.203249	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	Yes				
Hydric soils Present?	Yes		**Is this Sampling Point within a Wetland?**		**Yes**
Wetland Hydrology Present?	Yes				
Remarks:	Point taken adjacent to interstate and overpass.				

HYDROLOGY							
Wetland Hydrology Indicators:					**Secondary Indicators :**		
Primary Indicators :					Surface Soil Cracks (B6)		
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)		
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)		
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)		
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)		
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)		
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)		X
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)		
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)		X
Field Observations:							
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**			**Yes**
Water Table Present?	No	Depth (inches):					
Saturation Present?	No	Depth (inches):					
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):							
Remarks:							

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	10	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	7
Liriodendron tulipifera	5	yes	*FACU*	# of Dominant Species Across All Strata:	9
Platanus occidentalis	5	yes	*FACW*	Percent Dominant Species OBL, FACW, FAC:	78
	20	= Total Cover			
	50% of Total Cover =		10		
50/20 Thresholds:	20% of Total Cover =		4		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W7-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Carex typhina	30	yes	*FACW*	1 - Rapid Test	No
Eupatorium serotinum	15	yes	*FAC*	2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	45	= Total Cover			
	50% of Total Cover =		*22.5*		
50/20 Thresholds:	20% of Total Cover =		*9*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Leersia oryzoides	60	yes	*OBL*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Polygonum hydropiperoides	20	yes	*OBL*	Sapling:	20 ft or more in height, less than 3 in DBH
Onoclea sensibilis	20	yes	*FACW*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	100	= Total Cover			
	50% of Total Cover =		*50*		
50/20 Thresholds:	20% of Total Cover =		*20*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Vitis aestivalis	5	yes	*FACU*		
	5	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-8	7.5YR 5/1	60	5YR 4/6	40	C	M	CL
8-24	10YR 6/1	50	5YR 4/6	50	C	M	CL

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W8-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/17/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W8-WET
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	Concave		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.946331	-77.201269	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:	Point taken in small depression adjacent to stream.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	X
Surface Water (A1)		Water-stained Leaves (B9)		X	Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	X
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	40	Yes	*FAC*	# Dominant Species OBL, FACW, FAC:	7
Liriodendron tulipifera	20	Yes	*FACU*	# of Dominant Species Across All Strata:	9
				Percent Dominant Species OBL, FACW, FAC:	78
	60	= Total Cover			
	50% of Total Cover =		30		
50/20 Thresholds:	20% of Total Cover =		12		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Acer rubrum	30	Yes	*FAC*		
Carya ovalis	5	No	*FACU*		
Fraxinus pennsylvanica	5	No	*FACW*		
Ilex opaca	5	No	*FACU*		
	45	= Total Cover			
	50% of Total Cover =		*22.5*		
50/20 Thresholds:	20% of Total Cover =		*9*		

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Project: I-495 NEXT
Sampling Date: 9/17/2019
Sampling Point: W8-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	10	Yes	*FAC*	1 - Rapid Test	No
Fraxinus pennsylvanica	10	Yes	*FACW*	2 - Dominance Test is >50%	Yes
Rosa multiflora	10	Yes	*FACU*	3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Polygonum pensylvanicum	15	Yes	*FACW*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Boehmeria cylindrica	15	Yes	*FACW*	Sapling:	20 ft or more in height, less than 3 in DBH
Toxicodendron radicans	10	Yes	*FAC*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	40	= Total Cover			
	50% of Total Cover =		*20*		
50/20 Thresholds:	20% of Total Cover =		*8*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-2	7.5YR 2.5/1	90	5YR 3/4	10	C	M	Loamy clay
2-8	10YR 5/1	60	5YR 4/4	40	C	M	Loamy clay
8-24	5YR 4/6	100					Loamy clay

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	Rocks present throughout sample

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Project: I-495
Sampling Date: 9/17/2019
Sampling Point: W8-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/17/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W8-UP
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	None		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.946341	-77.201449	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken in upland area between stream and wetland.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:	No hydrology indicators observed.					

VEGETATION								
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Liriodendron tulipifera	30	yes	*FACU*	# Dominant Species OBL, FACW, FAC:			4
Acer rubrum	30	yes	*FAC*	# of Dominant Species Across All Strata:			8
				Percent Dominant Species OBL, FACW, FAC:			50
	60	= Total Cover					
	50% of Total Cover =		30				
50/20 Thresholds:	20% of Total Cover =		12				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Acer rubrum	20	yes	*FAC*	Total Percent Cover of:			
Ilex opaca	15	yes	*FACU*	OBL	0	x1	0
				FACW	0	x2	0
				FAC	90	x3	270
				FACU	70	x4	280
	35	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*17.5*	Total	160		550
50/20 Thresholds:	20% of Total Cover =		*7*	PI =	3.4		

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Project: I-495
Sampling Date: 9/17/2019
Sampling Point: W8-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Diospyros virginiana	20	yes	*FAC*	1 - Rapid Test	No
Ilex vomitoria	10	yes	*FAC*	2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
N/A				Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Celastrus scandens	10	yes	*FACU*		
Parthenocissus quinquefolia	10	yes	*FACU*		
Hedera helix	5	no	*FACU*		
Smilax rotundifolia	5	no	*FAC*		
Toxicodendron radicans	5	no	*FAC*		
	35	= Total Cover		**Hydrophytic Vegetation Present:**	**No**
	50% of Total Cover =		*17.5*		
50/20 Thresholds:	20% of Total Cover =		*7*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-12	5YR 5/6	100					Sandy loam
12-24	5YR 4/6	100					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 8/14/2018
Sampling Point: W9-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	8/14/2018
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W9-WET
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	None		Slope (%):	0-2
Subregion:	LRR P	Lat/Long:	38.9459	-77.2043	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	PFO
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			

Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)		X	Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		X	Crayfish Burrows (C8)	
Drift Deposits (B3)	X	Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	90	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	4
				# of Dominant Species Across All Strata:	5
				Percent Dominant Species OBL, FACW, FAC:	80
	90	= Total Cover			
	50% of Total Cover =		45		
50/20 Thresholds:	20% of Total Cover =		18		

Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
N/A			
	0	= Total Cover	
	50% of Total Cover =		*0*
50/20 Thresholds:	20% of Total Cover =		*0*

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Project: I-495 NEXT
Sampling Date: 8/14/2018
Sampling Point: W9-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
N/A				1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Persicaria virginiana	20	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Microstegium vimineum	20	yes	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Leersia oryzoides	20	yes	*OBL*	Shrub:	3-20 ft in height
Persicaria arifolia	10	no	*OBL*	Herb:	less than 3 ft in height
Impatiens capensis	5	no	*FACW*		
Rosa multiflora	5	no	*FACU*		
Schedonorus arundinaceus	5	no	*FACU*	Vine:	all woody vines
	85	= Total Cover			
	50% of Total Cover =		*42.5*		
50/20 Thresholds:	20% of Total Cover =		*17*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Lonicera japonica	10	yes	*FACU*		
	10	= Total Cover			
	50% of Total Cover =		*5*	**Hydrophytic Vegetation Present:**	**Yes**
50/20 Thresholds:	20% of Total Cover =		*2*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-6	10YR 5/2	65	5YR 4/6	35	C	M	Silt clay loam
6-12	10YR 5/2	60	5YR 4/6	40	C	M	Silt clay loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):		**Hydric Soils Present:**	**Yes**
Type:			
Depth (inches):			

Remarks:	Oxidized rhizospheres in first six inches of soil.

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W9-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W9-UP1
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	8-10%
Subregion:	LRR P	Lat/Long:	38.946192	-77.202679	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken downslope from soundwall outside powerline easement, wetland located in easement to the north.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
N/A				# Dominant Species OBL, FACW, FAC:			3
				# of Dominant Species Across All Strata:			6
				Percent Dominant Species OBL, FACW, FAC:			50
	0	= Total Cover					
	50% of Total Cover =		0				
50/20 Thresholds:	20% of Total Cover =		0				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Robinia pseudoacacia	10	yes	*FACU*	Total Percent Cover of:			
				OBL	0	x1	0
				FACW	5	x2	10
				FAC	90	x3	270
				FACU	35	x4	140
	10	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*5*	Total	130		420
50/20 Thresholds:	20% of Total Cover =		*2*	PI =	3.2		

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W9-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
Solidago canadensis	20	yes	*FACU*	1 - Rapid Test	No
Lespedeza cuneata	5	yes	*FACU*	2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	25	= Total Cover			
	50% of Total Cover =		*12.5*		
50/20 Thresholds:	20% of Total Cover =		*5*		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:	
Arthraxon hispidus	40	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Microstegium vimineum	30	yes	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Eupatorium serotinum	20	yes	*FAC*	Shrub:	3-20 ft in height
Juncus effusus	5	no	*FACW*	Herb:	less than 3 ft in height
				Vine:	all woody vines
	95	= Total Cover			
	50% of Total Cover =		*47.5*		
50/20 Thresholds:	20% of Total Cover =		*19*		

Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*	**Hydrophytic Vegetation Present:**	**No**
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-10	7.5YR 5/6	100					Clay loam
10-12	7.5YR 6/8	100					Clay loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**No**
Depth (inches):	12		

Remarks: Restrictive rock layer at 12 inches. Rocks throughout sample.

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W9-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W9-UP2
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	None		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.9482	-77.202119	Datum:	NAD83
Soil Map Unit Name:	Codorus silt loam, 0 to 2 percent slopes, occasionally flooded				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken between wetland boundary and stream.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Liriodendron tulipifera	50	Yes	*FACU*	# Dominant Species OBL, FACW, FAC:			4
Acer rubrum	20	Yes	*FAC*	# of Dominant Species Across All Strata:			8
Fraxinus pennsylvanica	5	No	*FACW*	Percent Dominant Species OBL, FACW, FAC:			50
	75	= Total Cover					
	50% of Total Cover =		38				
50/20 Thresholds:	20% of Total Cover =		15				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Cornus florida	10	Yes	*FACU*	Total Percent Cover of:			
				OBL	0	x1	0
				FACW	5	x2	10
				FAC	50	x3	150
				FACU	80	x4	320
	10	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*5*	Total	135		480
50/20 Thresholds:	20% of Total Cover =		*2*	PI =	3.6		

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W9-UP2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
N/A				1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Polygonum virginianum	10	Yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Lindera benzoin	5	Yes	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	15	= Total Cover			
	50% of Total Cover =		*7.5*		
50/20 Thresholds:	20% of Total Cover =		*3*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Lonicera japonica	10	Yes	*FACU*		
Toxicodendron radicans	10	Yes	*FAC*		
Vitis aestivalis	10	Yes	*FACU*		
Smilax rotundifolia	5	No	*FAC*		
	35	= Total Cover			
	50% of Total Cover =		*17.5*	**Hydrophytic Vegetation Present:**	**No**
50/20 Thresholds:	20% of Total Cover =		*7*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-8	7.5YR 5/4	100					Sandy loam
8-24	7.5YR 5/2	100					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W10-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W10-UP1
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	None		Slope (%):	2-4%
Subregion:	LRR P	Lat/Long:	38.950598	-77.198741	Datum:	NAD83
Soil Map Unit Name:	Wheaton-Glenelg complex, 7 to 15 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No			
Hydric soils Present?	Yes		**Is this Sampling Point within a Wetland?**	**No**
Wetland Hydrology Present?	No			
Remarks:	Point taken upslope to the northeast of Dominion Energy plant, just outside power easement. Potentially disturbed due to maintenance of easement.			

HYDROLOGY						
Wetland Hydrology Indicators:						
Primary Indicators :					Secondary Indicators :	
Surface Water (A1)		Water-stained Leaves (B9)			Surface Soil Cracks (B6)	
High Water Table (A2)		Aquatic Fauna (B13)			Sparsely Vegetated Concave Surface (B8)	
Saturation (A3)		Marl Deposits (B 15)			Drainage Patterns (B10)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Moss Trim Lines (B16)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Dry-Season Water Table (C2)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Crayfish Burrows (C8)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Saturation Visible on Aerial Imagery (C9)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			Shallow Aquitard (D3)	
Field Observations:					FAC-Neutral Test (D5)	
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
N/A				# Dominant Species OBL, FACW, FAC:			2
				# of Dominant Species Across All Strata:			7
				Percent Dominant Species OBL, FACW, FAC:			29
	0	= Total Cover					
	50% of Total Cover =		0				
50/20 Thresholds:	20% of Total Cover =		0				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Robinia pseudoacacia	10	yes	*FACU*	Total Percent Cover of:			
				OBL	0	x1	0
				FACW	0	x2	0
				FAC	90	x3	270
				FACU	55	x4	220
	10	= Total Cover		UPL	30	x5	150
	50% of Total Cover =		*5*	Total	175		640
50/20 Thresholds:	20% of Total Cover =		*2*	PI =	3.7		

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: W10-UP1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Solidago canadensis	5	yes	*FACU*	1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	5	= Total Cover			
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Paspalum notatum	30	yes	*FACU*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Setaria faberi	10	yes	*UPL*	Sapling:	20 ft or more in height, less than 3 in DBH
Verbesina alternifolia	10	yes	*FAC*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	50	= Total Cover			
	50% of Total Cover =		*25*		
50/20 Thresholds:	20% of Total Cover =		*10*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Polygonum perfoliatum	80	yes	*FAC*		
Vitis aestivalis	10	yes	*FACU*		
	90	= Total Cover		**Hydrophytic Vegetation Present:**	**No**
	50% of Total Cover =		*45*		
50/20 Thresholds:	20% of Total Cover =		*18*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-3	10YR 3/1	80	5YR 4/6	20	C	M	Sandy loam
3-10	5YR 4/4	100					Sandy loam
10-20	2.5YR 4/8	100					Clay loam
20-24	2.5YR 5/8	100					Clay loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):		**Hydric Soils Present:**	**Yes**
Type:			
Depth (inches):			

Remarks:

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W11-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION								
Project # & Site:	I-495 NEXT		City/County:	Fairfax County		Date:	8/16/2018	
Applicant/Owner:	VDOT		State:	Virginia		Sampling Point:	W11-WET	
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer		Section/Township/Range:					
Landform:	Floodplain		Local Relief:	Concave		Slope (%):	2	
Subregion:	LRR P		Lat/Long:	38.961246	-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				
Are "Normal Circumstances" present?				Yes				
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?		
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?		

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**		**Yes**
Hydric soils Present?	Yes				
Wetland Hydrology Present?	Yes				
Remarks:					

HYDROLOGY							
Wetland Hydrology Indicators:					**Secondary Indicators :**		
Primary Indicators :					Surface Soil Cracks (B6)		
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)		
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)		
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)		
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		X	Crayfish Burrows (C8)		
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)		
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)		
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)		
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)		X
Field Observations:							
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**			**Yes**
Water Table Present?	No	Depth (inches):					
Saturation Present?	Yes	Depth (inches):	2				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):							
Remarks:							

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	45	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	4
Liriodendron tulipifera	5	no	*FACU*	# of Dominant Species Across All Strata:	4
Fraxinus pennsylvanica	5	no	*FACW*	Percent Dominant Species OBL, FACW, FAC:	100
	55	= Total Cover			
	50% of Total Cover =		28		
50/20 Thresholds:	20% of Total Cover =		11		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Fraxinus pennsylvanica	35	yes	*FACW*		
Acer rubrum	5	no	*FAC*		
	40	= Total Cover			
	50% of Total Cover =		*20*		
50/20 Thresholds:	20% of Total Cover =		*8*		

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Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W11-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	25	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	25	= Total Cover			
	50% of Total Cover =		*12.5*		
50/20 Thresholds:	20% of Total Cover =		*5*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	60	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Ligustrum japonicum	5	no	*UPL*	Sapling:	20 ft or more in height, less than 3 in DBH
Lonicera japonica	5	no	*FACU*	Shrub:	3-20 ft in height
Acer rubrum	5	no	*FAC*	Herb:	less than 3 ft in height
				Vine:	all woody vines
	75	= Total Cover			
	50% of Total Cover =		*37.5*		
50/20 Thresholds:	20% of Total Cover =		*15*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-12	10YR 4/2	90	10YR 6/6	10	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	

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Project: I-495 NEXT
Sampling Date: 9/19/2019
Sampling Point: W11-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/19/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W11-UP
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	18-20%
Subregion:	LRR P	Lat/Long:	38.961146	-77.186851	Datum:	NAD83
Soil Map Unit Name:	Glenelg silt loam, 15 to 25 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken on steep slope above WOUS.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Quercus alba	30	yes	*FACU*	# Dominant Species OBL, FACW, FAC:	4
Acer rubrum	20	yes	*FAC*	# of Dominant Species Across All Strata:	6
Liriodendron tulipifera	15	no	*FACU*	Percent Dominant Species OBL, FACW, FAC:	67
Ulmus americana	15	no	*FACW*		
Fagus grandifolia	5	no	*FACU*		
	85	= Total Cover			
	50% of Total Cover =		43		
50/20 Thresholds:	20% of Total Cover =		17		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

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Project: I-495 NEXT
Sampling Date: 9/19/2019
Sampling Point: W11-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
Phyllostachys aureosulcata	60	yes	*UPL*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	60	= Total Cover			
	50% of Total Cover =		*30*		
50/20 Thresholds:	20% of Total Cover =		*12*		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:	
Microstegium vimineum	10	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Athyrium filix-femina	10	yes	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Polygonum virginianum	10	yes	*FAC*	Shrub:	3-20 ft in height
Polystichum acrostichoides	5	no	*FACU*	Herb:	less than 3 ft in height
Rubus phoenicolasius	5	no	*FACU*	Vine:	all woody vines
	40	= Total Cover			
	50% of Total Cover =		*20*		
50/20 Thresholds:	20% of Total Cover =		*8*		

Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-22	7.5YR 6/6	100					Sandy loam
22-24	7.5YR 5/2	100					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:	Rocks throughout sample.

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Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W12-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	8/16/2018
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W12-WET1
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	None		Slope (%):	5
Subregion:	LRR P	Lat/Long:	38.965049	-77.187033	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			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)	X	Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)	X	Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)	X	Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)	X	Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	Yes	Depth (inches):	1	**Wetland Hydrology Present?**		**Yes**
Water Table Present?	Yes	Depth (inches):	2			
Saturation Present?	Yes	Depth (inches):	0			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
N/A				# Dominant Species OBL, FACW, FAC:	3
				# of Dominant Species Across All Strata:	3
				Percent Dominant Species OBL, FACW, FAC:	100
	0	= Total Cover			
	50% of Total Cover =		0		
50/20 Thresholds:	20% of Total Cover =		0		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

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Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W12-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	5	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	5	= Total Cover			
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	60	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Boehmeria cylindrica	30	yes	*FACW*	Sapling:	20 ft or more in height, less than 3 in DBH
Sagittaria calycina	5	no	*OBL*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	95	= Total Cover			
	50% of Total Cover =		*47.5*		
50/20 Thresholds:	20% of Total Cover =		*19*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-12	10YR 3/2	85	10YR 4/6	15	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)	X	Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			
Remarks:			

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W12-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	8/16/2018
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W12-WET1
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	None		Slope (%):	5
Subregion:	LRR P	Lat/Long:	38.965331	-77.186959	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			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)	X	Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)	X	Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)	X	Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)	X	Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	Yes	Depth (inches):	1	**Wetland Hydrology Present?**		**Yes**
Water Table Present?	Yes	Depth (inches):	2			
Saturation Present?	Yes	Depth (inches):	0			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
N/A				# Dominant Species OBL, FACW, FAC:	3
				# of Dominant Species Across All Strata:	3
				Percent Dominant Species OBL, FACW, FAC:	100
	0	= Total Cover			
	50% of Total Cover =		0		
50/20 Thresholds:	20% of Total Cover =		0		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

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Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W12-WET1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	5	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	5	= Total Cover			
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	60	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Boehmeria cylindrica	30	yes	*FACW*	Sapling:	20 ft or more in height, less than 3 in DBH
Sagittaria calycina	5	no	*OBL*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	95	= Total Cover			
	50% of Total Cover =		*47.5*		
50/20 Thresholds:	20% of Total Cover =		*19*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-12	10YR 3/2	85	10YR 4/6	15	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)	X	Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			
Remarks:			

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/19/2019
Sampling Point: W12-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/19/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W12-UP
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Concave		Slope (%):	6-8%
Subregion:	LRR P	Lat/Long:	38.965221	-77.186885	Datum:	NAD83
Soil Map Unit Name:	Glenelg silt loam, 25 to 45 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes			
Hydric soils Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Wetland Hydrology Present?	Yes			
Remarks:	Point taken four or five feet upslope from WOUS, within topographic draw.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	X
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	X
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	X
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Fagus grandifolia	20	yes	*FACU*	# Dominant Species OBL, FACW, FAC:	6
Liriodendron tulipifera	15	yes	*FACU*	# of Dominant Species Across All Strata:	10
Platanus occidentalis	15	yes	*FACW*	Percent Dominant Species OBL, FACW, FAC:	60
	50	= Total Cover			
	50% of Total Cover =		25		
50/20 Thresholds:	20% of Total Cover =		10		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Acer rubrum	20	yes	*FAC*		
Asimina triloba	10	yes	*FAC*		
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

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Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Asimina triloba	10	yes	*FAC*	1 - Rapid Test	No
Fagus grandifolia	5	yes	*FACU*	2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	15	= Total Cover			
	50% of Total Cover =		*7.5*		
50/20 Thresholds:	20% of Total Cover =		*3*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Polygonum virginianum	10	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Polystichum acrostichoides	10	yes	*FACU*	Sapling:	20 ft or more in height, less than 3 in DBH
Microstegium vimineum	10	yes	*FAC*	Shrub:	3-20 ft in height
Arisaema triphyllum	5	no	*FACW*	Herb:	less than 3 ft in height
Athyrium filix-femina	5	no	*FAC*	Vine:	all woody vines
	40	= Total Cover			
	50% of Total Cover =		*20*		
50/20 Thresholds:	20% of Total Cover =		*8*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-4	10YR 3/1	100					Loamy clay
4-6	10YR 5/1	50	5YR 4/6	50	C	M	Loamy clay
6-24	7.5YR 5/6	100					Loamy sand

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:	

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Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W13-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION								
Project # & Site:	I-495 NEXT		City/County:	Fairfax County			Date:	8/16/2018
Applicant/Owner:	VDOT		State:	Virginia			Sampling Point:	W13-WET
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer		Section/Township/Range:					
Landform:	Level or Nearly Level		Local Relief:	Concave			Slope (%):	
Subregion:	LRR P		Lat/Long:	38.9630	-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				
Are "Normal Circumstances" present?				Yes				
Are Vegetation	No	Soils	No	or Hydrology	No		significantly disturbed?	
Are Vegetation	No	Soils	No	or Hydrology	No		naturally problematic?	

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)	X	Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		X	Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	Yes	Depth (inches):	4			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	40	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	4
Fraxinus pennsylvanica	10	no	*FACW*	# of Dominant Species Across All Strata:	4
Platanus occidentalis	5	no	*FACW*	Percent Dominant Species OBL, FACW, FAC:	100
Liriodendron tulipifera	5	no	*FACU*		
	60	= Total Cover			
	50% of Total Cover =		30		
50/20 Thresholds:	20% of Total Cover =		12		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Fraxinus pennsylvanica	25	yes	*FACW*		
Acer rubrum	5	no	*FAC*		
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

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Sampling Date: 8/16/2018
Sampling Point: W13-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	15	yes	*FAC*	1 - Rapid Test	No
Fraxinus pennsylvanica	5	no	*FACW*	2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	20	= Total Cover			
	50% of Total Cover =		*10*		
50/20 Thresholds:	20% of Total Cover =		*4*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	75	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Osmundastrum cinnamomeum	5	no	*FACW*	Sapling:	20 ft or more in height, less than 3 in DBH
Ligustrum japonicum	5	no	*UPL*	Shrub:	3-20 ft in height
Lonicera japonica	5	no	*FACU*	Herb:	less than 3 ft in height
				Vine:	all woody vines
	90	= Total Cover			
	50% of Total Cover =		*45*		
50/20 Thresholds:	20% of Total Cover =		*18*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-12	10YR 3/2	80	10YR 4/6	20	C	M	Silt loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)	X	Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	

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Project: I-495 NEXT
Sampling Date: 9/19/2019
Sampling Point: W13-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION								
Project # & Site:	I-495 NEXT		City/County:	Fairfax County			Date:	9/19/2019
Applicant/Owner:	VDOT		State:	Virginia			Sampling Point:	W13-UP
Investigator:	KRJ/SS		Section/Township/Range:					
Landform:	Hillslope		Local Relief:	Convex			Slope (%):	18-20%
Subregion:	LRR P		Lat/Long:	38.968147	-77.18121		Datum:	NAD83
Soil Map Unit Name:	Rhodhiss-Rock outcrop complex, 25 to 45 percent slopes						NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?				Yes				
Are "Normal Circumstances" present?				Yes				
Are Vegetation	No	Soils	No	or Hydrology	No		significantly disturbed?	
Are Vegetation	No	Soils	No	or Hydrology	No		naturally problematic?	

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**		**No**
Hydric soils Present?	No				
Wetland Hydrology Present?	No				
Remarks:	Data point taken on very steep slope above delineated wetland.				

HYDROLOGY							
Wetland Hydrology Indicators:					**Secondary Indicators :**		
Primary Indicators :					Surface Soil Cracks (B6)		
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)		
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)		
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)		
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)		
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)		
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)		
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)		
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)		
Field Observations:							
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**			**No**
Water Table Present?	No	Depth (inches):					
Saturation Present?	No	Depth (inches):					
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):							
Remarks:							

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Cercis canadensis	30	yes	*FACU*	# Dominant Species OBL, FACW, FAC:			3
Fagus grandifolia	25	yes	*FACU*	# of Dominant Species Across All Strata:			6
				Percent Dominant Species OBL, FACW, FAC:			50
	55	= Total Cover					
	50% of Total Cover =		28				
50/20 Thresholds:	20% of Total Cover =		11				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Asimina triloba	40	yes	*FAC*	Total Percent Cover of:			
Acer rubrum	10	yes	*FAC*	OBL	0	x1	0
				FACW	0	x2	0
				FAC	65	x3	195
				FACU	70	x4	280
	50	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*25*	Total	135		475
50/20 Thresholds:	20% of Total Cover =		*10*	PI =	3.5		

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Project: I-495 NEXT
Sampling Date: 9/19/2019
Sampling Point: W13-UP

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
N/A				1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:	
Lindera benzoin	15	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Polystichum acrostichoides	10	yes	*FACU*	Sapling:	20 ft or more in height, less than 3 in DBH
Rubus phoenicolasius	5	no	*FACU*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status		
N/A					
	0	= Total Cover			
	50% of Total Cover =		*0*	**Hydrophytic Vegetation Present:**	**No**
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-10	10YR 3/2	90					Sandy loam
	10YR 7/3	10					Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:	Rock	**Hydric Soils Present:**	**No**
Depth (inches):	10		

Remarks: Restrictive rock layer at 10 inches, small rocks throughout sample. Mixed matrix.

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Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W14-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	8/16/2018
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	W14-WET
Investigator:	Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	Section/Township/Range:				
Landform:	Floodplain	Local Relief:	Concave		Slope (%):	2
Subregion:	LRR P	Lat/Long:	38.9630	-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			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**Yes**
Hydric soils Present?	Yes			
Wetland Hydrology Present?	Yes			
Remarks:				

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)	X	Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	X
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**Yes**
Water Table Present?	No	Depth (inches):				
Saturation Present?	Yes	Depth (inches):	4			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	40	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	5
Fraxinus pennsylvanica	10	no	*FACW*	# of Dominant Species Across All Strata:	5
Platanus occidentalis	5	no	*FACW*	Percent Dominant Species OBL, FACW, FAC:	100
Liriodendron tulipifera	5	no	*FACU*		
	60	= Total Cover			
	50% of Total Cover =		30		
50/20 Thresholds:	20% of Total Cover =		12		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Fraxinus pennsylvanica	25	yes	*FACW*		
Acer rubrum	5	no	*FAC*		
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

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Project: I-495 NEXT
Sampling Date: 8/16/2018
Sampling Point: W14-WET

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	15	yes	*FAC*	1 - Rapid Test	No
Fraxinus pennsylvanica	5	yes	*FACW*	2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	20	= Total Cover			
	50% of Total Cover =		*10*		
50/20 Thresholds:	20% of Total Cover =		*4*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Microstegium vimineum	75	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Osmundastrum cinnamomeum	5	no	*FACW*	Sapling:	20 ft or more in height, less than 3 in DBH
Ligustrum japonicum	5	no	*UPL*	Shrub:	3-20 ft in height
Lonicera japonica	5	no	*FACU*	Herb:	less than 3 ft in height
				Vine:	all woody vines
	90	= Total Cover			
	50% of Total Cover =		*45*		
50/20 Thresholds:	20% of Total Cover =		*18*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**Yes**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-12	10YR 4/2	80	10YR 5/6	20	C	M	Silt loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)	X	Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**Yes**
Depth (inches):			

Remarks:	

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Project: I-496 NEXT
Sampling Date: 9/16/2019
Sampling Point: UPLAND 1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/16/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	UPLAND 1
Investigator:	KRJ/SHS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Convex		Slope (%):	2-4%
Subregion:	LRR P	Lat/Long:	38.928199	-77.205965	Datum:	NAD83
Soil Map Unit Name:	Wheaton-Meadowville complex, 2 to 7 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	Yes		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken in moderately disturbed hardwood area, and upslope from stream.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION					
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**	
Acer rubrum	30	yes	*FAC*	# Dominant Species OBL, FACW, FAC:	5
Acer saccharinum	20	yes	*FACW*	# of Dominant Species Across All Strata:	8
				Percent Dominant Species OBL, FACW, FAC:	63
	50	= Total Cover			
	50% of Total Cover =		25		
50/20 Thresholds:	20% of Total Cover =		10		
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Ilex opaca	5	yes	*FACU*		
	5	= Total Cover			
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

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Project: I-496 NEXT
Sampling Date: 9/16/2019
Sampling Point: UPLAND 1

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lonicera maackii	50	yes	*UPL*	1 - Rapid Test	No
Lindera benzoin	15	yes	*FAC*	2 - Dominance Test is >50%	Yes
				3 - Prevalence Index is ≤ 3.0	
				4 - Problematic Hydrophytic Vegetation	No
	65	= Total Cover			
	50% of Total Cover =		*32.5*		
50/20 Thresholds:	20% of Total Cover =		*13*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
N/A				Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
Lonicera japonica	15	yes	*FACU*		
Toxicodendron radicans	15	yes	*FAC*		
Vitis rotundifolia	10	yes	*FAC*		
	40	= Total Cover			
	50% of Total Cover =		*20*	**Hydrophytic Vegetation Present:**	**Yes**
50/20 Thresholds:	20% of Total Cover =		*8*		

Remarks:	Prevalence Index was not used in determining presence of hydrophytic vegetation.

SOILS

Profile Description:

Depth Inches	Matrix		Redox Features				Texture
	Color (Moist)	%	Color (Moist)	%	Type	Loc	
0-8	7.5YR 4/4	95	2.5YR 4/8	5	D	M	Sandy clay loam
8-24+	7.5YR 5/8	95	7.5YR 2.5/1	5	C	M	Sandy clay loam
					Iron manganese masses.		

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:	Rocks throughout soil sample.

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: UPLAND 2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	UPLAND 2
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	Concave		Slope (%):	0-2%
Subregion:	LRR P	Lat/Long:	38.958566	-77.193775	Datum:	NAD83
Soil Map Unit Name:	Glenelg silt loam, 7 to 15 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken in middle of hardwood forest.			

HYDROLOGY					
Wetland Hydrology Indicators:				**Secondary Indicators :**	
Primary Indicators :				Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)		Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)		Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)		Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)		Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)		Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)		Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)		Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)		Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		FAC-Neutral Test (D5)	
Field Observations:					
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**	**No**
Water Table Present?	No	Depth (inches):			
Saturation Present?	No	Depth (inches):			
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):					
Remarks:					

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Liriodendron tulipifera	70	yes	*FACU*	# Dominant Species OBL, FACW, FAC:			3
				# of Dominant Species Across All Strata:			6
				Percent Dominant Species OBL, FACW, FAC:			50
	70	= Total Cover					
	50% of Total Cover =		35				
50/20 Thresholds:	20% of Total Cover =		14				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Acer negundo	10	yes	*FAC*	Total Percent Cover of:			
Fagus grandifolia	10	yes	*FACU*	OBL	0	x1	0
Liriodendron tulipifera	10	yes	*FACU*	FACW	0	x2	0
Ilex opaca	5	no	*FACU*	FAC	105	x3	315
				FACU	100	x4	400
	35	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*17.5*	Total	205		715
50/20 Thresholds:	20% of Total Cover =		7	PI =	3.5		

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Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: UPLAND 2

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	70	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	70	= Total Cover			
	50% of Total Cover =		*35*		
50/20 Thresholds:	20% of Total Cover =		*14*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Lindera benzoin	20	yes	*FAC*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
Polygonum virginianum	5	no	*FAC*	Sapling:	20 ft or more in height, less than 3 in DBH
Alliaria petiolata	5	no	*FACU*	Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	30	= Total Cover			
	50% of Total Cover =		*15*		
50/20 Thresholds:	20% of Total Cover =		*6*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**No**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Loc	Texture
0-20	5YR 4/6	100					Clay loam
20-24	5YR 5/6	100					Clay loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/19/2019
Sampling Point: UPLAND 3

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/19/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	UPLAND 3
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Hillslope	Local Relief:	Concave		Slope (%):	13-15%
Subregion:	LRR P	Lat/Long:	38.96541	-77.18377	Datum:	NAD83
Soil Map Unit Name:	Glenelg silt loam, 25 to 45 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS					
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**		**No**
Hydric soils Present?	No				
Wetland Hydrology Present?	No				
Remarks:	Point taken at top of WOUS, between houses on both sides. Located within topographic draw above WOUS.				

HYDROLOGY						
Wetland Hydrology Indicators:						
Primary Indicators :					**Secondary Indicators :**	
Surface Water (A1)		Water-stained Leaves (B9)			Surface Soil Cracks (B6)	
High Water Table (A2)		Aquatic Fauna (B13)			Sparsely Vegetated Concave Surface (B8)	
Saturation (A3)		Marl Deposits (B 15)			Drainage Patterns (B10)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Moss Trim Lines (B16)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Dry-Season Water Table (C2)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Crayfish Burrows (C8)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Saturation Visible on Aerial Imagery (C9)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			Shallow Aquitard (D3)	
Field Observations:					FAC-Neutral Test (D5)	
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Liriodendron tulipifera	35	yes	*FACU*	# Dominant Species OBL, FACW, FAC:			2
Fagus grandifolia	20	yes	*FACU*	# of Dominant Species Across All Strata:			5
Acer negundo	20	yes	*FAC*	Percent Dominant Species OBL, FACW, FAC:			40
	75	= Total Cover					
	50% of Total Cover =		38				
50/20 Thresholds:	20% of Total Cover =		15				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Acer rubrum	30	yes	*FAC*	Total Percent Cover of:			
				OBL	0	x1	0
				FACW	0	x2	0
				FAC	50	x3	150
				FACU	55	x4	220
	30	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*15*	Total	105		370
50/20 Thresholds:	20% of Total Cover =		*6*	PI =	3.5		

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Project: I-495 NEXT
Sampling Date: 9/19/2019
Sampling Point: UPLAND 3

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Phyllostachys aureosulcata	15	yes	*UPL*	1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	15	= Total Cover			
	50% of Total Cover =		*7.5*		
50/20 Thresholds:	20% of Total Cover =		*3*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
N/A				Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	0	= Total Cover			
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**No**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-20	10YR 4/3	90	5YR 5/6	10	C	M	Sandy loam
20-24	7.5YR 4/4	95	5YR 5/8	5	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: UPLAND 4

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

SITE INFORMATION						
Project # & Site:	I-495 NEXT	City/County:	Fairfax County		Date:	9/18/2019
Applicant/Owner:	VDOT	State:	Virginia		Sampling Point:	UPLAND 4
Investigator:	KRJ/SS	Section/Township/Range:				
Landform:	Level or Nearly Level	Local Relief:	Concave		Slope (%):	2-4%
Subregion:	LRR P	Lat/Long:	38.959615	-77.193331	Datum:	NAD83
Soil Map Unit Name:	Glenelg silt loam, 7 to 15 percent slopes				NWI Classification:	N/A
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes			
Are "Normal Circumstances" present?			Yes			
Are Vegetation	No	Soils	No	or Hydrology	No	significantly disturbed?
Are Vegetation	No	Soils	No	or Hydrology	No	naturally problematic?

SUMMARY OF FINDINGS				
Hydrophytic Vegetation Present?	No		**Is this Sampling Point within a Wetland?**	**No**
Hydric soils Present?	No			
Wetland Hydrology Present?	No			
Remarks:	Point taken in dranage swale.			

HYDROLOGY						
Wetland Hydrology Indicators:					**Secondary Indicators :**	
Primary Indicators :					Surface Soil Cracks (B6)	
Surface Water (A1)		Water-stained Leaves (B9)			Sparsely Vegetated Concave Surface (B8)	
High Water Table (A2)		Aquatic Fauna (B13)			Drainage Patterns (B10)	
Saturation (A3)		Marl Deposits (B 15)			Moss Trim Lines (B16)	
Water Marks (B1)		Hydrogen Sulfide Odor (C1)			Dry-Season Water Table (C2)	
Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)			Crayfish Burrows (C8)	
Drift Deposits (B3)		Presence of Reduced Iron (C4)			Saturation Visible on Aerial Imagery (C9)	
Algal Mats or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)			Geomorphic Position (D2)	
Iron Deposits (B5)		Thin Muck Surface (C7)			Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)			FAC-Neutral Test (D5)	
Field Observations:						
Surface Water Present?	No	Depth (inches):		**Wetland Hydrology Present?**		**No**
Water Table Present?	No	Depth (inches):				
Saturation Present?	No	Depth (inches):				
Describe Recorded Data (Stream gauge, monitoring well, aerial photograph, previous inspection):						
Remarks:						

VEGETATION							
Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Dominance Test Worksheet:**			
Liriodendron tulipifera	60	yes	*FACU*	# Dominant Species OBL, FACW, FAC:			3
				# of Dominant Species Across All Strata:			6
				Percent Dominant Species OBL, FACW, FAC:			50
	60	= Total Cover					
	50% of Total Cover =		30				
50/20 Thresholds:	20% of Total Cover =		12				
Sapling Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Prevalence Index (PI) Worksheet:**			
Acer rubrum	40	yes	*FAC*	Total Percent Cover of:			
Asimina tribola	20	yes	*FAC*	OBL	0	x1	0
Fagus grandifolia	20	yes	*FACU*	FACW	0	x2	0
				FAC	70	x3	210
				FACU	85	x4	340
	80	= Total Cover		UPL	0	x5	0
	50% of Total Cover =		*40*	Total	155		550
50/20 Thresholds:	20% of Total Cover =		*16*	PI =	3.5		

Kimley»Horn

Project: I-495 NEXT
Sampling Date: 9/18/2019
Sampling Point: UPLAND 4

WETLAND DETERMINATION DATA FORM
Eastern Mountain and Piedmont

Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Hydrophytic Vegetation Indicators:**	
Lindera benzoin	10	yes	*FAC*	1 - Rapid Test	No
				2 - Dominance Test is >50%	No
				3 - Prevalence Index is ≤ 3.0	No
				4 - Problematic Hydrophytic Vegetation	No
	10	= Total Cover			
	50% of Total Cover =		*5*		
50/20 Thresholds:	20% of Total Cover =		*2*		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**	**Definitions of Vegetation Strata:**	
Polystichum acrostichoides	5	yes	*FACU*	Tree:	20 ft or more in height, 3 in or larger diameter at DBH
				Sapling:	20 ft or more in height, less than 3 in DBH
				Shrub:	3-20 ft in height
				Herb:	less than 3 ft in height
				Vine:	all woody vines
	5	= Total Cover			
	50% of Total Cover =		*2.5*		
50/20 Thresholds:	20% of Total Cover =		*1*		

Woody Vine Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**		
N/A					
	0	= Total Cover		**Hydrophytic Vegetation Present:**	**No**
	50% of Total Cover =		*0*		
50/20 Thresholds:	20% of Total Cover =		*0*		

Remarks:

SOILS

Profile Description:

Depth Inches	Matrix Color (Moist)	%	Redox Features Color (Moist)	%	Type	Loc	Texture
0-8	5YR 3/3	100					Sandy loam
8-24	5YR 4/6	95	2.5YR 5/8	5	C	M	Sandy loam

Type: C=Concentration, D=Depletion, RM = Reduced Matrix, CS=Cover or Coated Sand Grains; Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Histosol (A1)		Sandy Redox (S5)		Umbric Surface (F13)	
Histic Epipedon (A2)		Stripped Matrix (S6)		Delta Ochric (F17)	
Black Histic (A3)		Dark Surface (S7)		Reduced Vertic (F18)	
Hydrogen Sulfide (A4)		Polyvalue Below Surface (S8)		Piedmont Floodplain Soils (F19)	
Stratified Layers (A5)		Thin Dark Surface (S9)		Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6)		Loamy Mucky Mineral (F1)		1 cm Muck (A9)	
5 cm Mucky Mineral (A7)		Loamy Gleyed Matrix (F2)		2 cm Muck (A10)	
Muck Presence (A8)		Depleted Matrix (F3)		Reduced Vertic (F18)	
1 cm Muck (A9)		Redox Dark Surface (F6)		Piedmont Floodplain Soils (F19)	
Depleted Below Dark Surface (A11)		Depleted Dark Surface (F7)		Anomalous Bright Loamy Soils	
Thick Dark Surface (A12)		Redox Depressions (F8)		Red Parent Material (TF2)	
Coast Prairie Redox (A16)		Marl (F10)		Very Shallow Dark Surface (TF12)	
Sandy Mucky Mineral (S1)		Depleted Ochric (F11)		Other (Explain in Remarks)	
Sandy Gleyed Matrix (S4)		Iron-Manganese Masses (F12)			

Restrictive Layer (if observed):			
Type:		**Hydric Soils Present:**	**No**
Depth (inches):			

Remarks:

Stream Assessment Form (Form 1)

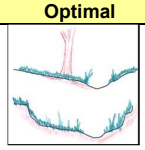
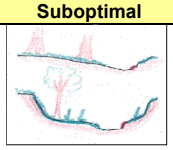
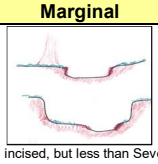
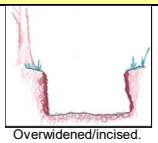
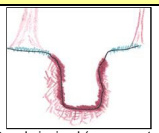
Unified Stream Methodology for use in Virginia

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		1640	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS 1 - Unnamed tributary to Scott's Run

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	2.4
NOTES>>	Overall the stream has some incised portions and some not so incised sections but the banks are farily stable.					

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>>
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.	**NOTES>>** The majority of the buffer is floodplain mosaic wetlands on both sides of the streams. On the left bank there is houses and lawns.
		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>	85%	10%	5%				100%			
	Score >	1.5	0.75	0.5							
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	60%	25%	15%				100%	Rt Bank CI >	1.38	CI
	Score >	1.5	0.5	0.75					Lt Bank CI >	1.14	1.26

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>>	
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.	**NOTES>>** Stable elements are apparent in the majority of the stream	CI
Score	1.5	1.2	0.9	0.5		1.50

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	WOUS 1		

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 in a small portion of the 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) >>	**1.29**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**2116**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

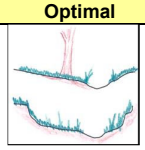
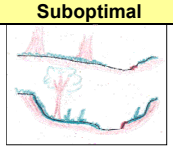
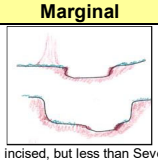
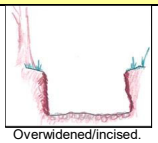
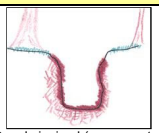
Unified Stream Methodology for use in Virginia

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		54	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS 11 - Unnamed tributary to Scott's Run

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>>	Some areas of incision and 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>>
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.	**NOTES>>** The buffer is floodplain mosaic wetlands on both sides of the streams.
		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

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>>	
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.	**NOTES>>** Habitat elements are present in the majority of the stream	CI
Score	1.5	1.2	0.9	0.5		1.50

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	WOUS 11		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> alteration/straightening has not occurred on this stream near I-495, however the remainder of the stream appears undisturbed.

	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) >>	**1.26**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**68**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

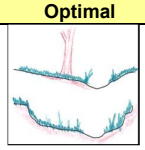
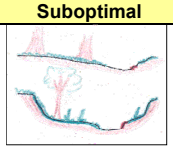
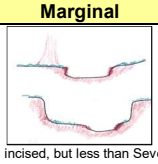
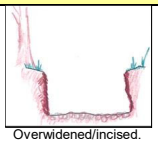
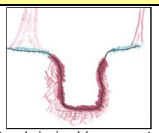
Unified Stream Methodology for use in Virginia

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		296	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS 10J - Unnamed tributary to Scott's Run

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 very incised and vertical. Erosion is present and evident					

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>>
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.	**NOTES>>** The buffer is floodplain mosaic wetlands on both sides of the streams.
		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

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>>	
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.	**NOTES>>** Habitat elements are present in only a small portion of the stream	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	10J		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> alteration/straightening has not occurred on 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**	**1.50**

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) >>	**1.10**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**326**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

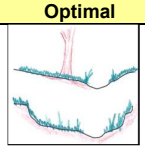
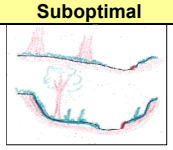
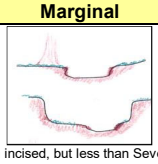
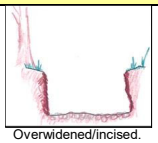
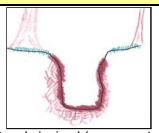
Unified Stream Methodology for use in Virginia

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			

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10J - Unnamed tributary to Scott's Run

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 very incised and vertical. Erosion is present and evident					

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>>
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.	**NOTES>>** The buffer is floodplain mosaic wetlands on both sides of the streams.
		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

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>>	
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.	**NOTES>>** Habitat elements are present in only a small portion of the stream	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	WOUS10J		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> alteration/straightening has not occurred on 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**	**1.50**

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) >>	**1.10**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**0**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

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	02070008	8/20/2018		24	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10G - Unnamed tributary to Scott's Run

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 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

NOTES>> The buffer is floodplain mosaic wetlands on both sides of the streams.

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							
Left Bank	% Riparian Area>	100%						100%	
	Score >	1.5							

CI= (Sum % RA * Scores*0.01)/2

Rt Bank CI >	1.50	CI
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) >>	**18**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

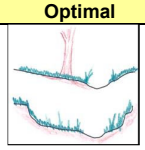
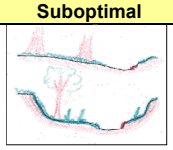
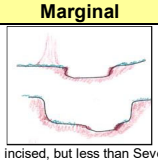
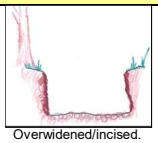
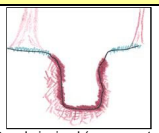
Unified Stream Methodology for use in Virginia

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		35	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10E - Unnamed tributary to Scott's Run

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>>	Banks are incided and erosion is present on approximately 50% of the 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>>
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.	**NOTES>>** The buffer is floodplain mosaic wetlands on both sides of the streams. The left bank has a house and a lawn.
		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>	80%	15%	5%				100%	Rt Bank CI >	1.50	CI
	Score >	1.5	0.6	0.5					Lt Bank CI >	1.32	1.41

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>>
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.	**NOTES>>** Habitat elements are present in the majority of the stream.
Score	1.5	1.2	0.9	0.5	CI 1.50

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	WOUS10E		

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) >>	**1.24**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**43**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

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	02070008	8/20/2018		56	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10D - Unnamed tributary to Scott's Run

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 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

NOTES>> The buffer is floodplain mosaic wetlands on both sides of the streams. There are some houses and lawns within the right buffer.

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>	90%	10%					100%	
	Score >	1.5	0.6						
Left Bank	% Riparian Area>	100%						100%	
	Score >	1.5							

CI= (Sum % RA * Scores*0.01)/2

Rt Bank CI >	1.41	CI
Lt Bank CI >	1.50	1.46

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) >>	0.73

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>	41

CR = RCI X LF X IF

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

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	02070008	8/20/2018		47	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10B - Unnamed tributary to Scott's Run

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 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

NOTES>> The buffer is floodplain mosaic wetlands on both sides of the streams.

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							
Left Bank	% Riparian Area>	100%						100%	
	Score >	1.5							

CI= (Sum % RA * Scores*0.01)/2

Rt Bank CI >	1.50	CI
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) >>	35

CR = RCI X LF X IF

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

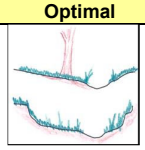
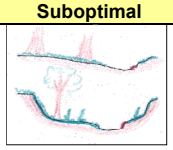
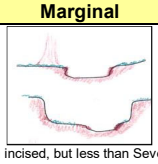
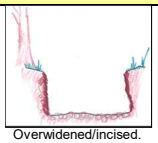
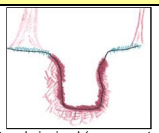
Unified Stream Methodology for use in Virginia

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		53	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10A - Unnamed tributary to Scott's Run

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	3.0
NOTES>>	Very little incision is apparent on the stream.					

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>>
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.	**NOTES>>** The buffer is floodplain mosaic wetlands on both sides of the streams.
		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

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>>	
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.	**NOTES>>** Habitat elements are present in the majority of the stream.	CI
Score	1.5	1.2	0.9	0.5		1.50

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	WOUS10A		

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) >>	**1.46**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**77**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

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	02070008	8/20/2018		58	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10K - Unnamed tributary to Scott's Run

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 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

NOTES>> The buffer is floodplain mosaic wetlands on both sides of the streams. The left bank has I-495 which takes up a significant portion of the buffer

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>	25%	75%					100%	Rt Bank CI >	1.50	CI
	Score >	1.5	0.5						Lt Bank CI >	0.75	1.13

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) >>	**0.57**
RCI= (Riparian CI)/2	
COMPENSATION REQUIREMENT (CR) >>	**33**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

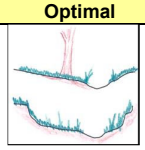
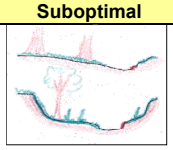
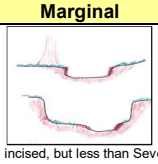
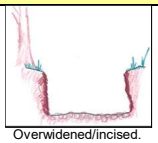
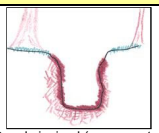
Unified Stream Methodology for use in Virginia

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		57	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10H - Unnamed tributary to Scott's Run

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	3.0
NOTES>>	Banks have limited incision					

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 a house and lawn. The right bank has more natural features but still has a road that intersects it.

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							
Left Bank	% Riparian Area>	80%	20%					100%	
	Score >	1.5	0.5						

CI= (Sum % RA * Scores*0.01)/2

Rt Bank CI >	1.50	CI
Lt Bank CI >	1.30	1.40

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	1.20

NOTES>> Habitat elements are present in a portion 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	WOUS10H		

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) >>	**1.38**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**79**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

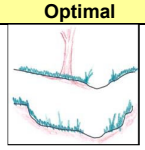
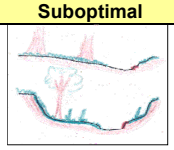
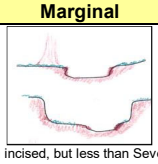
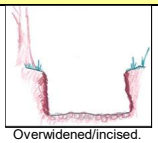
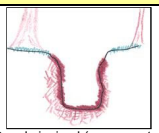
Unified Stream Methodology for use in Virginia

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		242	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10F - Unnamed tributary to Scott's Run

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>>	Incision apparent on both 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>>
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.	**NOTES>>** The buffer is floodplain mosaic wetlands on both sides of the streams.
		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

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>>	
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.	**NOTES>>** Habitat elements are present in the majority of the stream.	CI
Score	1.5	1.2	0.9	0.5		1.50

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	WOUS10F		

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) >>	**1.26**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**305**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

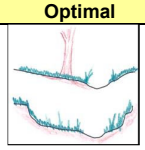
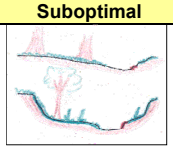
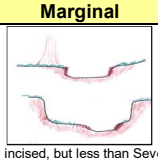
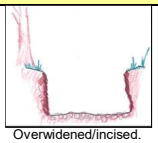
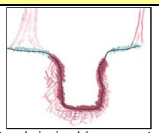
Unified Stream Methodology for use in Virginia

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	R4	02070008	8/20/2018		194	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS10C - Unnamed tributary to Scott's Run

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	2.4
NOTES>>	Slight incision but banks are fairly stable throughout.					

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>>
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.	**NOTES>>** The buffer is floodplain mosaic wetlands on both sides of the streams.
		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

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>>	
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.	**NOTES>>** Habitat elements are present in the majority of the stream.	CI
Score	1.5	1.2	0.9	0.5		1.50

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R4	0207008	8/20/18	WOUS10C		

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) >>	**1.34**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**260**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

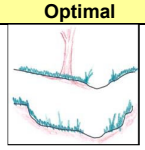
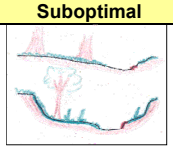
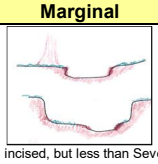
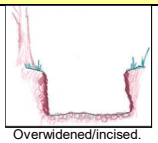
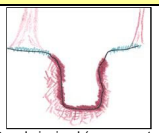
Unified Stream Methodology for use in Virginia

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		365	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS20C - 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>> Both sides of the stream are wetland/floodplain mosaic. The right bank has I-495 which runs through it while the left bank has a home and yard.

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>	30%	70%					100%	
	Score >	1.5	0.5						
								CI= (Sum % RA * Scores*0.01)/2	
Left Bank	% Riparian Area>	90%	10%					100%	Rt Bank CI > 0.80
	Score >	1.5	0.6						Lt Bank CI > 1.41

CI: 1.11

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	0.50

NOTES>> Habitat elements are not present, the majority of the channel has been riprapped

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
	VDOT	Fairfax	R4	0207008	8/20/18	WOUS20C		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> The majority of the channel has been altered through straightening and riprap

	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) >>	**0.74**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**270**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

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	02070008	8/20/2018		34	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS22 - 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							
	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

NOTES>> Both sides of the stream are wetland/floodplain mosaic.

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							
Left Bank	% Riparian Area>	100%						100%	
	Score >	1.5							

CI= (Sum % RA * Scores*0.01)/2

Rt Bank CI >	1.50	CI
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) >>	26

CR = RCI X LF X IF

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

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	02070008	8/20/2018		50	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS21 - 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							
	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

NOTES>> Both sides of the stream are wetland/floodplain mosaic.

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							
Left Bank	% Riparian Area>	100%						100%	
	Score >	1.5							

CI= (Sum % RA * Scores*0.01)/2

Rt Bank CI >	1.50	CI
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) >>	38

CR = RCI X LF X IF

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

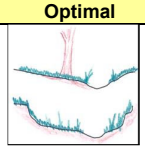
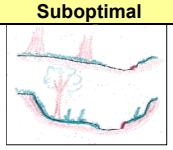
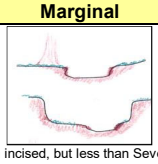
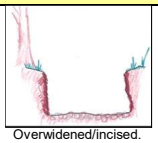
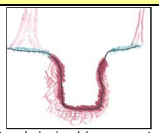
Unified Stream Methodology for use in Virginia

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		1221	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS6 - Unnamed tributary to Scott's Run

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	2.4
NOTES>>	Evidence of some incision along the 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>>
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.	**NOTES>>** Buffer is high suboptial with good canopy cover and non-maintained understory.
		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 >	1.2									
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI >	1.20	CI
	Score >	1.2							Lt Bank CI >	1.20	1.20

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>>	
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.	**NOTES>>** Habitat elements are present in a portion of the stream	
Score	1.5	1.2	0.9	0.5		1.50

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	WOUS6		

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 significant portion of the 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	0.70

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) >>	**1.16**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**1416**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

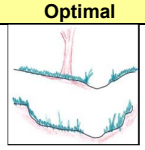
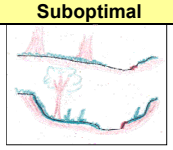
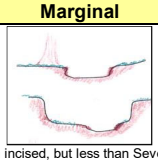
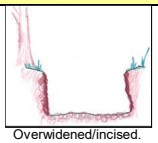
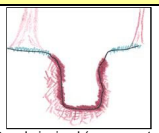
Unified Stream Methodology for use in Virginia

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		68	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS5 - Unnamed tributary to Scott's Run

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	2.4
NOTES>>	Evidence of some incision along the 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>>
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.	**NOTES>>** Buffer is high suboptial with good canopy cover and non-maintained understory.
		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 >	1.2									
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI >	1.20	CI
	Score >	1.2							Lt Bank CI >	1.20	1.20

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>>	
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.	**NOTES>>** Habitat elements are present in a portion of the stream	
Score	1.5	1.2	0.9	0.5		1.50

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	WOUS5		

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 portion of the 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**	**1.10**

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) >>	**1.24**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**84**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

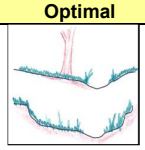
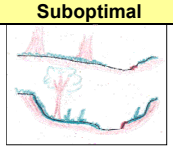
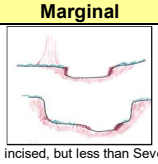
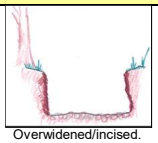
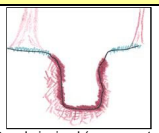
Unified Stream Methodology for use in Virginia

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		70	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS5A - Unnamed tributary to Scott's Run

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	2.4
NOTES>>	Evidence of some incision along the 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>>
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.	**NOTES>>** Buffer is high suboptial with good canopy cover and non-maintained understory.
		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 >	1.2									
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI >	1.20	CI
	Score >	1.2							Lt Bank CI >	1.20	1.20

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>>
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.	**NOTES>>** Habitat elements are present in a portion of the stream
Score	1.5	1.2	0.9	0.5	1.50

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	WOUS5A		

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 portion of the 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	1.10

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) >>	**1.24**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**87**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

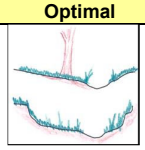
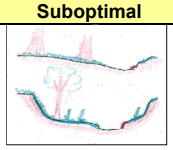
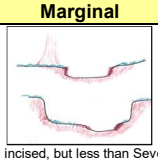
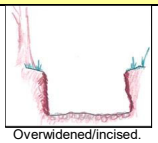
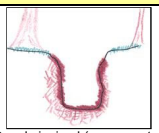
Unified Stream Methodology for use in Virginia

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		471	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS4 - Unnamed tributary to Scott's Run

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	2.4
NOTES>>	Evidence of some incision along the 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>>
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.	**NOTES>>** Buffer is high suboptial with good canopy cover and non-maintained understory.
		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 >	1.2									
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI >	1.20	CI
	Score >	1.2							Lt Bank CI >	1.20	1.20

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>>	
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.	**NOTES>>** Habitat elements are present in a portion of the stream	
Score	1.5	1.2	0.9	0.5		1.50

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	WOUS4		

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 significant portion of the 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	0.70

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) >>	**1.16**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**546**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

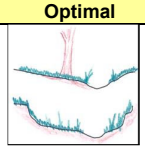
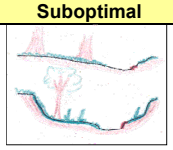
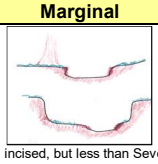
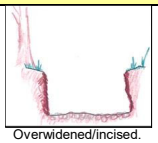
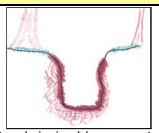
Unified Stream Methodology for use in Virginia

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		101	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS16 - 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>>
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.	**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.
		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>>
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.	**NOTES>>** Habitat elements are marginal for the majority of the stream.
Score	1.5	1.2	0.9	0.5	CI 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	WOUS16		

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) >>	**97**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

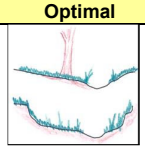
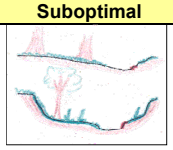
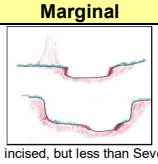
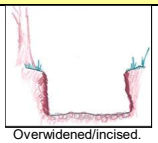
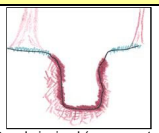
Unified Stream Methodology for use in Virginia

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	02070008	8/20/2018		339	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS17 - 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		
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.	**NOTES>>** The buffer of this stream has mature trees with significant canopy cover and has an un-maintained understory with very dense vegetation
		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		
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.	**NOTES>>** Habitat elements are marginal for the majority of the stream.	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	WOUS17		

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) >>	**278**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

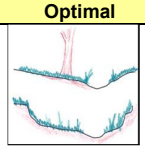
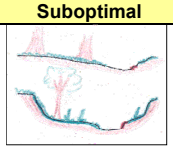
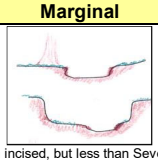
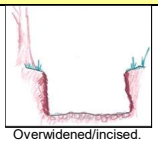
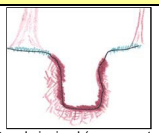
Unified Stream Methodology for use in Virginia

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		225	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS9 - Unnamed tributary to Scott's Run

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>>	Banks are have some significant incision however there are places that the banks are more stable.					

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>>
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.	**NOTES>>** Both sides of the stream are wetland/floodplain mosaic. The left bank has some minor development while the right bank has I-495 and houses/lawns/other roads.
		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>	20%	80%					100%		
	Score >	1.5	0.5							
									CI= (Sum % RA * Scores*0.01)/2	
Left Bank	% Riparian Area>	90%	10%					100%	Rt Bank CI > 0.70	CI
	Score >	1.5	0.5						Lt Bank CI > 1.40	1.05

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>>
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.	**NOTES>>** Habitat elements are stable for the majority of the stream.
Score	1.5	1.2	0.9	0.5	CI 1.50

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	WOUS9		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> A small section of the stream has been straightened and impacted through culverts.

	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) >>	**1.17**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**263**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Stream Assessment Form (Form 1)

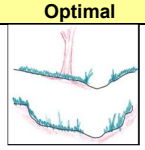
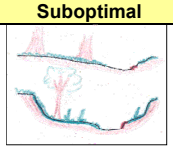
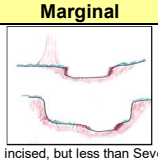
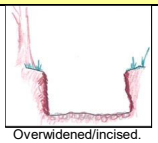
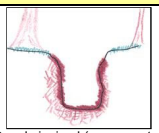
Unified Stream Methodology for use in Virginia

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		60	1

Name(s) of Evaluator(s)	Stream Name and Information
Scott Shifflett, Laura Cooper, Kyle Haynes, Evan Fowler, Emily Onufer	WOUS23 - Dead Run

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	2.4
NOTES>>	Banks are slightly incised but mostly stable.					

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.	**NOTES>>** Both sides of the stream are wetland/floodplain mosaic. George Washington Memorial Parkway cuts through the buffer.
		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>	95%	5%					100%		
	Score >	1.5	0.5							
									CI= (Sum % RA * Scores*0.01)/2	
Left Bank	% Riparian Area>	95%	5%					100%	Rt Bank CI > 1.45	CI
	Score >	1.5	0.5						Lt Bank CI > 1.45	1.45

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 stable 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		1.50

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	WOUS23		

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> Stream is natural.

	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	1.50

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) >>	**1.37**
RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >>	**82**
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

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	02070008	9/18/2019		78	1

Name(s) of Evaluator(s)	Stream Name and Information
Kenny Jesensky & Samantha Stratton	WOUS28 - Unnamed tributary to Scott's Run

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>> Impacted portion of stream located within powerline easement.
	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 >	0.6									
									CI= (Sum % RA * Scores*0.01)/2		
Left Bank	% Riparian Area>	100%						100%	Rt Bank CI >	0.60	CI
	Score >	0.6							Lt Bank CI >	0.60	0.60

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) >>	0.30

RCI= (Riparian CI)/2

COMPENSATION REQUIREMENT (CR) >>	23

CR = RCI X LF X IF

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:

Site Photographs

Photo Page 1

Photo 1 – Representative photo of Wetland 1.

Photo 2 – Soil sample from Wetland 1.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 2

Photo 3 – WOUS 1 facing downstream.

Photo 4 – Representative photo of Wetland 2.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 3

Photo 5 – WOUS 9 facing downstream.

Photo 6 – WOUS 9a facing upstream.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 4

Photo 7 – Soil sample from Wetland 4.

Photo 8 – Representative photo of Wetland 4.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 5

Photo 9 – WOUS 10 facing upstream.

Photo 10 – Representative photo of Wetland 5.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 6

Photo 11 – WOUS 10a facing downstream.

Photo 12 – Representative photo of wetland 5.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 7

Photo 13 – WOUS 10d looking downstream.

Photo 14 – WOUS 10e facing downstream.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 8

Photo 15 – WOUS 11 facing downstream.

Photo 16 – Representative photo of wetland 6.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 9

Photo 17 – WOUS 10j facing upstream.

Photo 18 – WOUS 12 facing downstream.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 10

Photo 19 – Representative photo of powerline easement that runs along Interstate 495.

Photo 20 – WOUS 10l facing downstream.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 11

Photo 21 – Representative photo of Wetland 8.

Photo 22 – Soil sample from Wetland 8.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 12

Photo 23 – Representative photo of Wetland 9.

Photo 24 – WOUS 14 facing upstream.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 13

Photo 25 – Representative photo of upland soil.

Photo 26 – Representative photo of upland area.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 14

Photo 27 – WOUS 18 facing upstream.

Photo 28 – Representative photo of Wetland 12.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 15

Photo 29 – WOUS 19 facing upstream.

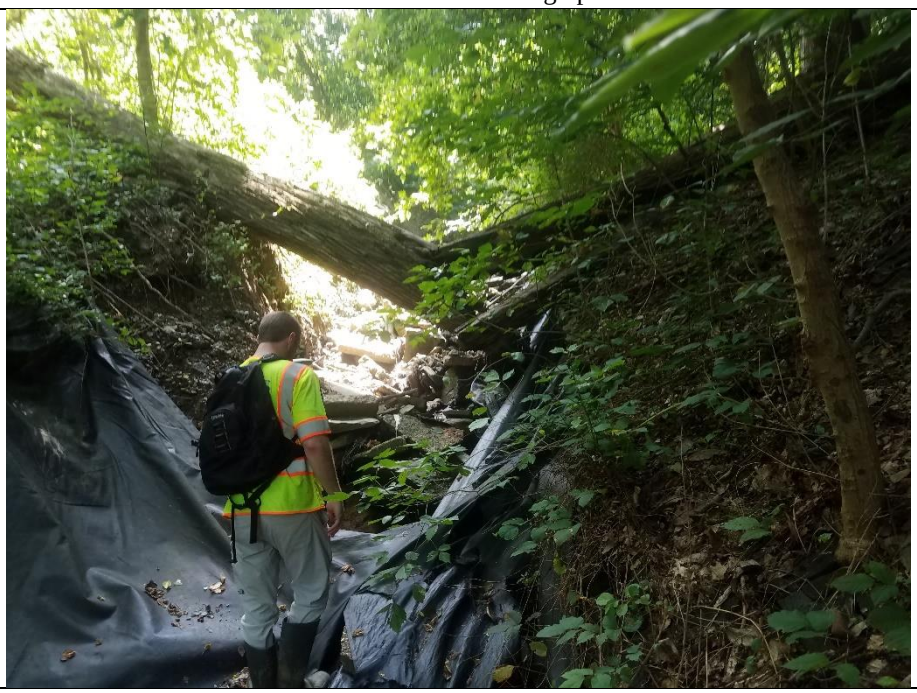


Photo 30 – WOUS 20c facing upstream.

Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

Photo Page 16

Photo 31 – WOUS 21a facing upstream.

Photo 32 –Representative photo of Wetland 13.

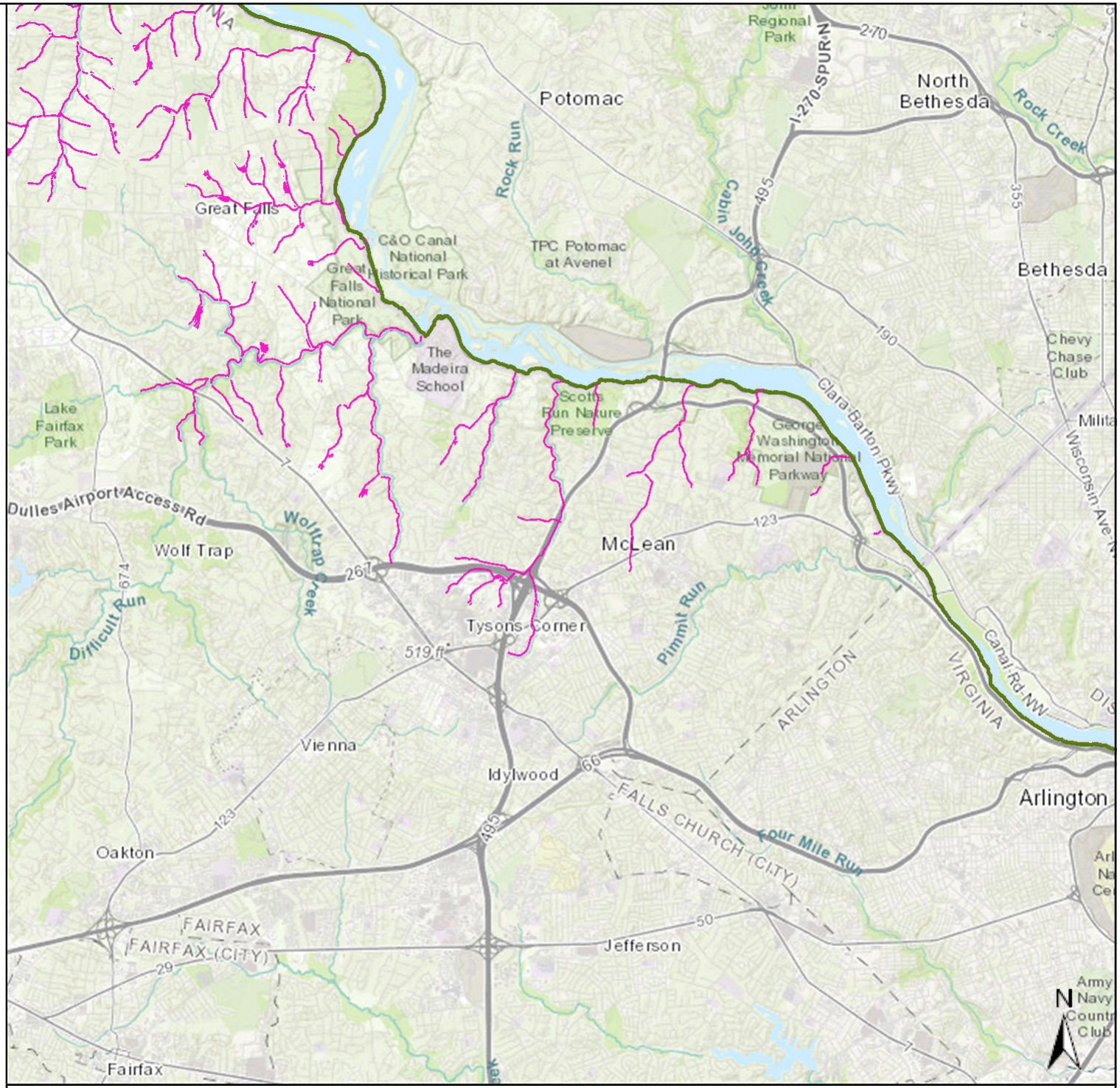
Title	Photo Pages	
Project	Virginia Department of Transportation (VDOT) I-495 NEXT Fairfax County, VA	**Prepared By**
Date	**Project Number**	Kimley»Horn
9/29/19	110467001	

VADEQ VEGIS Map Export

Legend

DEQ Offices (2016)

- DEQ Central Office
- South West Regional Office
- Blue Ridge Regional Office
- Northern Regional Office
- Piedmont Regional Office
- Tidewater Regional Office
- Valley Regional Office
- Public water supply
- Public Water Supply
- DEQ Regions (2016)



Miles

0 .5 1 1.5 2

DISCLAIMER: Information contained on this map is to be used for reference purposes only. The VA Dept. of Environmental Quality makes no representation of warranty as to this map's accuracy, and in particular, its accuracy in labeling, dimensions, contours, property boundaries, or placement or location of any map features thereon. No responsibility is assumed for damages or other liabilities due to the accuracy, availability, use or misuse of the information herein provided.

Title: I-495 NEXT Public Water Supply

Date: 11/26/2019

Appendix B: Threatened & Endangered Species Database Results

- ***USFWS Official Species List***
- ***VDGIF Initial Project Assessment Report***
- ***Bat Maps***
- ***Bald Eagle Maps***
- ***DCR Agency Scoping Response***
- ***USFWS Agency Scoping Response***
- ***VDGIF Agency Scoping Response***

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127
http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

In Reply Refer To: November 18, 2019
Consultation Code: 05E2CB00-2020-SLI-0190
Event Code: 05E2CB00-2020-E-00514
Project Name: I-495 NEXT

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

Attachment(s):

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

Official Species List

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

This species list is provided by:

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

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

Project Summary

Consultation Code: 05E2CB00-2020-SLI-0190

Event Code: 05E2CB00-2020-E-00514

Project Name: I-495 NEXT

Project Type: TRANSPORTATION

Project Description: The project includes an extension of the existing Express Lanes from their current northern terminus south of the Old Dominion Drive overpass to the George Washington Memorial Parkway (GWMP) in the McLean area of Fairfax County, Virginia. The project also includes portions of the Dulles Toll Road and the Dulles International Airport Access Highway, on either side of the Capital Beltway, from the Spring Hill Road Interchange to the Route 123 interchange, inclusive of new and reconfigured ramps at the Dulles Interchange and Route 123/I-495 interchange ramp connections.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.943896975010844N77.20364564623969W

Counties: Montgomery, MD | Fairfax, VA

Endangered Species Act Species

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

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

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

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Threatened

No critical habitat has been designated for this species.

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

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

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

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

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

Wetlands

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

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

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

LAKE

- L1UBHh

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
http://www.fws.gov/northeast/virginiafield/

In Reply Refer To: November 18, 2019
Consultation Code: 05E2VA00-2020-SLI-0725
Event Code: 05E2VA00-2020-E-01954
Project Name: I-495 NEXT

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

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

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

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment(s):

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

Official Species List

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

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

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

Project Summary

Consultation Code: 05E2VA00-2020-SLI-0725

Event Code: 05E2VA00-2020-E-01954

Project Name: I-495 NEXT

Project Type: TRANSPORTATION

Project Description: The project includes an extension of the existing Express Lanes from their current northern terminus south of the Old Dominion Drive overpass to the George Washington Memorial Parkway (GWMP) in the McLean area of Fairfax County, Virginia. The project also includes portions of the Dulles Toll Road and the Dulles International Airport Access Highway, on either side of the Capital Beltway, from the Spring Hill Road Interchange to the Route 123 interchange, inclusive of new and reconfigured ramps at the Dulles Interchange and Route 123/I-495 interchange ramp connections.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.943896975010844N77.20364564623969W

Counties: Montgomery, MD | Fairfax, VA

Endangered Species Act Species

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

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

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

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

VaFWIS Search Report Compiled on 11/20/2019, 9:44:26 PM

Help

Known or likely to occur within a **2 mile radius around point 38.9515640 -77.1965680** in **059 Fairfax County, VA**

View Map of Site Location

700 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 32) (32 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata		BOVA
050020	SE	Ia	Bat, little brown	Myotis lucifugus	Yes	BOVA,SppObs,HU6
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus	Yes	BOVA,SppObs,HU6
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA
030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Yes	BOVA,TEWaters,Habitat,SppObs,HU6
040096	ST	Ia	Falcon, peregrine	Falco peregrinus		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
040379	ST	Ia	Sparrow, Henslow's	Ammodramus henslowii		BOVA
100155	ST	Ia	Skipper, Appalachian grizzled	Pyrgus wyandot		BOVA,HU6
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA,HU6
010077		Ia	Shiner, bridle	Notropis bifrenatus		BOVA
040040		Ia	Ibis, glossy	Plegadis falcinellus		BOVA,HU6
040306		Ia	Warbler, golden-winged	Vermivora chrysoptera		BOVA
100248		Ia	Fritillary, regal	Speyeria idalia idalia		BOVA,HU6
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA,HU6
040052		IIa	Duck, American black	Anas rubripes		BOVA,HU6
040033		IIa	Egret, snowy	Egretta thula		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040036		IIa	Night-heron, yellow-crowned	Nyctanassa violacea violacea		BOVA
040181		IIa	Tern, common	Sterna hirundo		BOVA,HU6
040320		IIa	Warbler, cerulean	Setophaga cerulea	Potential	BOVA,BBA,HU6
040140		IIa	Woodcock, American	Scolopax minor		BOVA,HU6
060071		IIa	Lampmussel, yellow	Lampsilis cariosa		BOVA
040203		IIb	Cuckoo, black-billed	Coccyzus erythropthalmus	Potential	BOVA,BBA
040105		IIb	Rail, king	Rallus elegans		BOVA,HU6
040304		IIc	Warbler, Swainson's	Limnothlypis swainsonii	Potential	BOVA,BBA,HU6
070020		IIc	Amphipod, Pizzini's	Stygobromus pizzinii		HU6
100154		IIc	Butterfly, Persius duskywing	Erynnis persius persius		BOVA,HU6

100166		IIc	Skipper, Dotted	Hesperia attalus slossonae		HU6

To view **All 700 species** View 700

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need;
IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need
Virginia Widlife Action Plan Conservation Opportunity Ranking:
a - On the ground management strategies/actions exist and can be feasibly implemented.; b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.;
c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

View Map of All Query Results from All Observation Tables

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (1 records) View Map of All Anadromous Fish Use Streams

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
C64	Potomac river	Confirmed	6		IV	Yes

Impediments to Fish Passage

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (1 Reach) View Map of All Threatened and Endangered Waters

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
Pimmit Run (017016)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Yes

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Species Observations (92 records - displaying first 20 , 3 Observations with Threatened or Endangered species) View Map of All Query Results Species Observations

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
302159	SppObs	Jun 25 2003	J. Gates	3	SE	I	Yes
312648	SppObs	Aug 7 2005	ROBERT A. S. WRIGHT (PRINCIPLE PERMITTEE), PTG, INC.	1	ST	I	Yes
3108	SppObs	Jan 1 1928	DCR/Div. Natural Heritage	1	ST	I	Yes
628252	SppObs	Aug 26 2015	Danielle Wynne; John Burke; Chad Grupe; Joseph Sanchi	5		III	Yes
65735	SppObs	Jun 27 2000	NANCY ROTH (PRINCIPLE PERMITTEE), KATERINE DILLOW, FRED KELLEY, DAVE WONG, AND CRAIG BRUCE, (COLLECTORS)	17		III	Yes
65733	SppObs	Apr 26 2000	NANCY ROTH (PRINCIPLE PERMITTEE), KATERINE DILLOW, FRED KELLEY, DAVE WONG, AND CRAIG BRUCE, (COLLECTORS)	11		III	Yes

59551	SppObs	Oct 22 1999	NANCY ROTH (PRINCIPLE PERMITTEE), KATHERINE DILLOW, & FRED, KELLEY, VERSAR, INC.	15		III	Yes
59547	SppObs	Aug 10 1999	NANCY ROTH (PRINCIPLE PERMITTEE), KATHERINE DILLOW, & FRED, KELLEY, VERSAR, INC.	5		III	Yes
425248	SppObs	Aug 5 1999	VCU - INSTAR	6		III	Yes
59643	SppObs	Aug 5 1999	MS. AMY MAHER, COUNTY OF FAIRFAX, DEPT. OF PUBLIC WORKS	6		III	Yes
59544	SppObs	Jun 17 1999	NANCY ROTH (PRINCIPLE PERMITTEE), KATHERINE DILLOW, & FRED, KELLEY, VERSAR, INC.	10		III	Yes
59541	SppObs	Apr 20 1999	NANCY ROTH (PRINCIPLE PERMITTEE), KATHERINE DILLOW, & FRED, KELLEY, VERSAR, INC.	6		III	Yes
59539	SppObs	Apr 20 1999	NANCY ROTH (PRINCIPLE PERMITTEE), KATHERINE DILLOW, & FRED, KELLEY, VERSAR, INC.	16		III	Yes
7686	SppObs	Jun 20 1995	WAYNE C. STARNES	7		III	Yes
305490	SppObs	Jun 20 1995	WAYNE C. STARNES	5		III	Yes
305485	SppObs	Jun 6 1995	WAYNE C. STARNES	5		III	Yes
7683	SppObs	Jun 6 1995	WAYNE C. STARNES	5		III	Yes
5180	SppObs	May 17 1993	Joseph C. Mitchell	1		III	Yes
334820	SppObs	Jan 1 1974	DPK-B-KELSO	4		III	Yes
364732	SppObs	Jan 1 1900		3		IV	Yes

Displayed 20 Species Observations

Selected 92 Observations View all 92 Species Observations

Habitat Predicted for Aquatic WAP Tier I & II Species (4 Reaches) View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Stream Name	Tier Species							View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name						
Bullneck Run (20700081)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta		Yes
Pimmit Run (20700101)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta		Yes
tributary (20700081)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta		Yes
Turkey Run (20700081)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta		Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
040038			Bittern, American	Botaurus lentiginosus	Yes

Virginia Breeding Bird Atlas Blocks (4 records) View Map of All Query Results Virginia Breeding Bird Atlas Blocks

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE*	Highest Tier**	
53204	Falls Church, CE	54		III	Yes
53203	Falls Church, CW	56		III	Yes
53202	Falls Church, NE	54		III	Yes
53201	Falls Church, NW	88		II	Yes

Public Holdings: (1 names)

Name	Agency	Level
George Washington Memorial National Parkway	National Park Service	Federal

Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
059	Fairfax	559	FESE	I

USGS 7.5' Quadrangles:
Falls Church

USGS NRCS Watersheds in Virginia:

N/A

USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
PL22	Difficult Run	67	ST	I
PL23	Potomac River-Nichols Run-Scott Run	69	SE	I
PL24	Potomac River-Pimmit Run	68	SE	I

Compiled on 11/20/2019, 9:44:26 PM I1002911.0 report=all searchType= R dist= 3218 poi= 38.9515640 -77.1965680

PixelSize=64; Anadromous=0.038004; BBA=0.060814; BECAR=0.020406; Bats=0.020772; Buffer=0.122071; County=0.078273; HU6=0.07079; Impediments=0.021766; Init=0.180833; PublicLands=0.037695; Quad=0.041679; SppObs=0.209686; TEWaters=0.03846; TierReaches=0.056931; TierTerrestrial=0.055811; Total=1.346395; Tracking_BOVA=0.340033; Trout=0.02266; huva=0.035342

VaFWIS - Department of Game and Inland Fisheries

38.95156 -77.19656
is the Search Point
Submit Cancel

Search Point
- **Change** to "clicked" map point
- **Fixed** at 38.95156 -77.19656

Show Position Rings
Yes No
1 mile and 1/4 mile at the **Search Point**

Show Search Area
Yes No
2 Search distance miles radius

Search Point is at map center

Base Map Choices
Topography

Map Overlay Choices
Current List: Position, Search

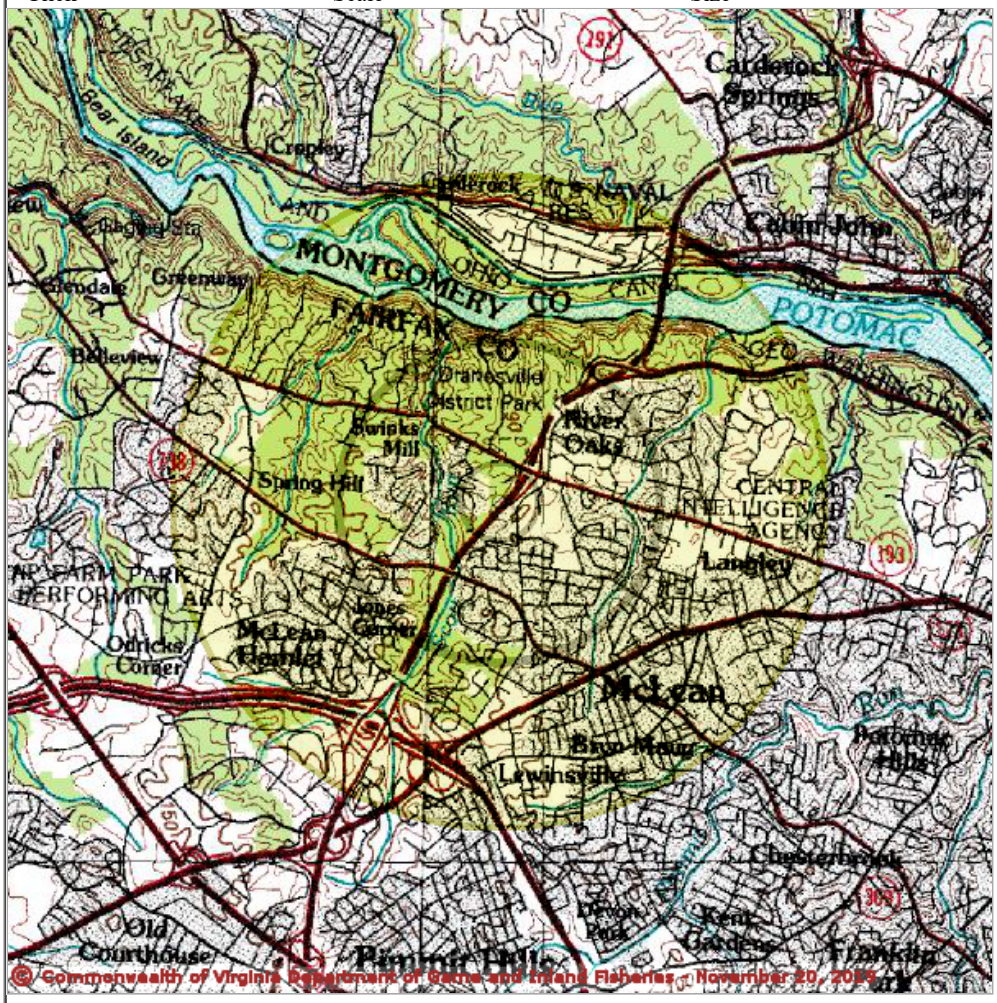
Map Overlay Legend

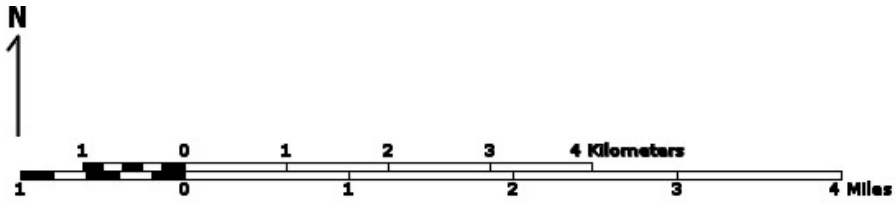
Position Rings 1 mile and 1/4 mile at the Search Point

2 mile radius Search Area

Refresh Browser Page

Map Click Pan Id M Map Scale In Zoom Out Screen Size Small Size Big Help





Point of Search 38.95156 -77.19656
Map Location 38.95156 -77.19656

Select **Coordinate System:**
- Degrees,Minutes,Seconds Latitude - Longitude
- Decimal Degrees Latitude - Longitude
- Meters UTM NAD83 East North Zone
- Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see Microsoft terraserver-usa.com for details)

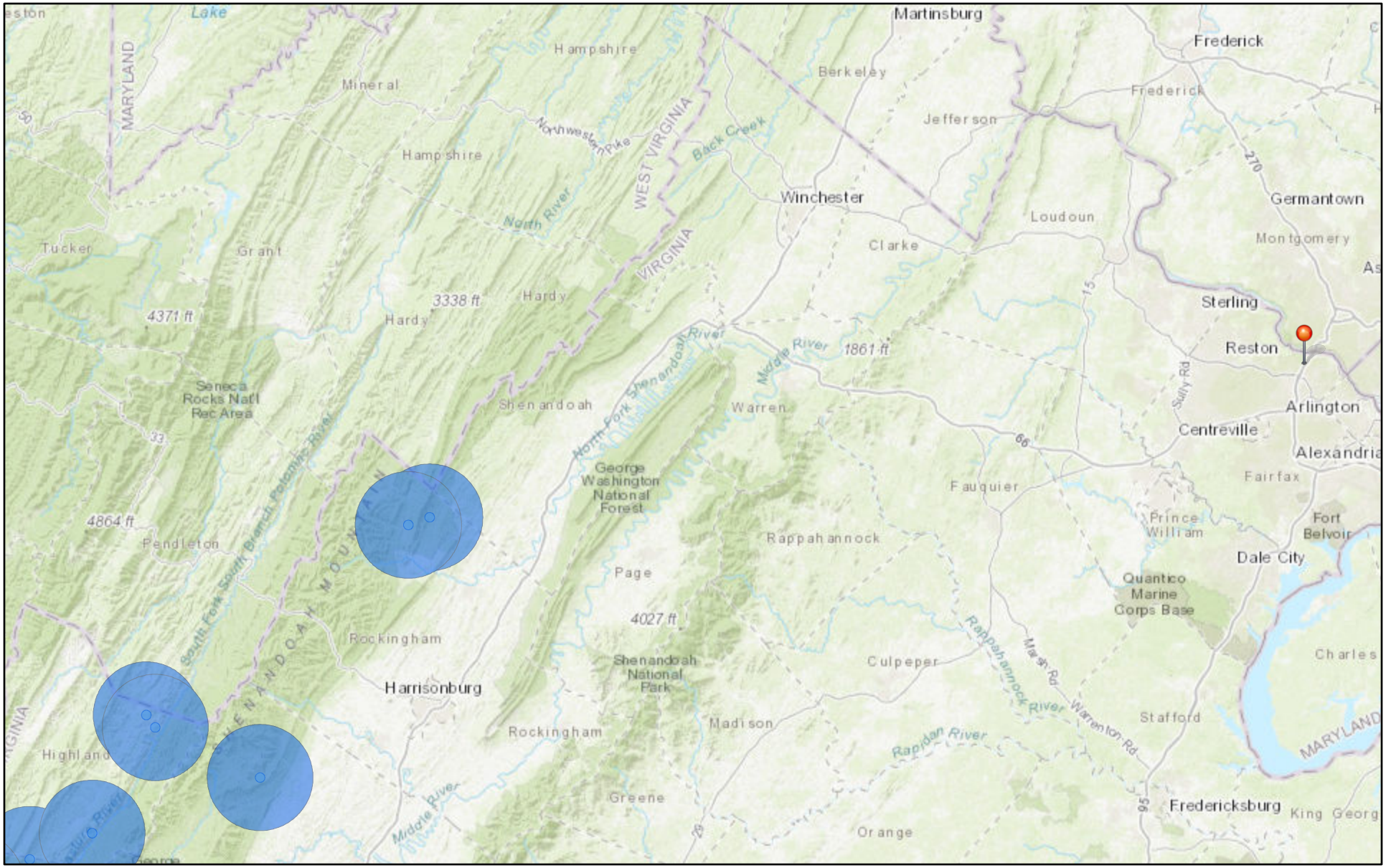
Map projection is UTM Zone 18 NAD 1983 with left 304858 and top 4318496. Pixel size is 16 meters . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display

represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+-
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.
Shaded topographic maps are from TOPO! ©2006 National Geographic
http://www.national.geographic.com/topo
All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2019-11-20 21:44:03 (qa/qc March 21, 2016 12:20 - tn=1002911 dist=3218 I
)
$poi=38.9515640 -77.1965681

NLEB Locations and Roost Trees



11/18/2019, 10:46:36 AM

NLEB Hibernaculum 5.5 Mile Buffer

NLEB Hibernaculum Half Mile Buffer

1:1,155,581

0 5 10 20 mi

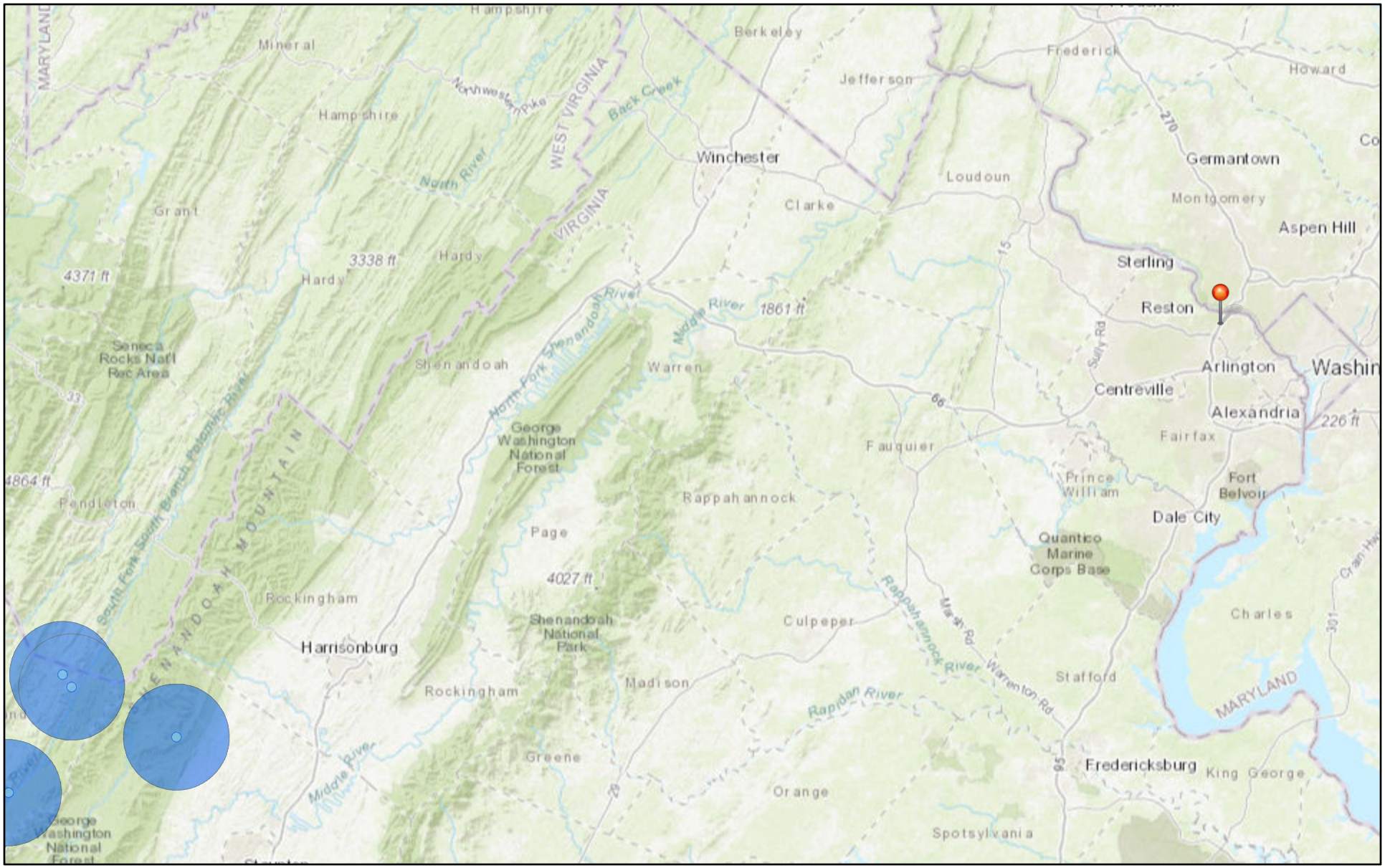
0 12.5 25 50 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

VA Dept. Game & Inland Fisheries

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS |

MYLU PESU Habitat



11/18/2019, 10:48:45 AM

Tri-colored and Little Brown Hibernaculum Half Mile Buffer

Tri-colored and Little Brown Hibernaculum 5.5 Mile Buffer

1:1,155,581

0 5 10 20 mi

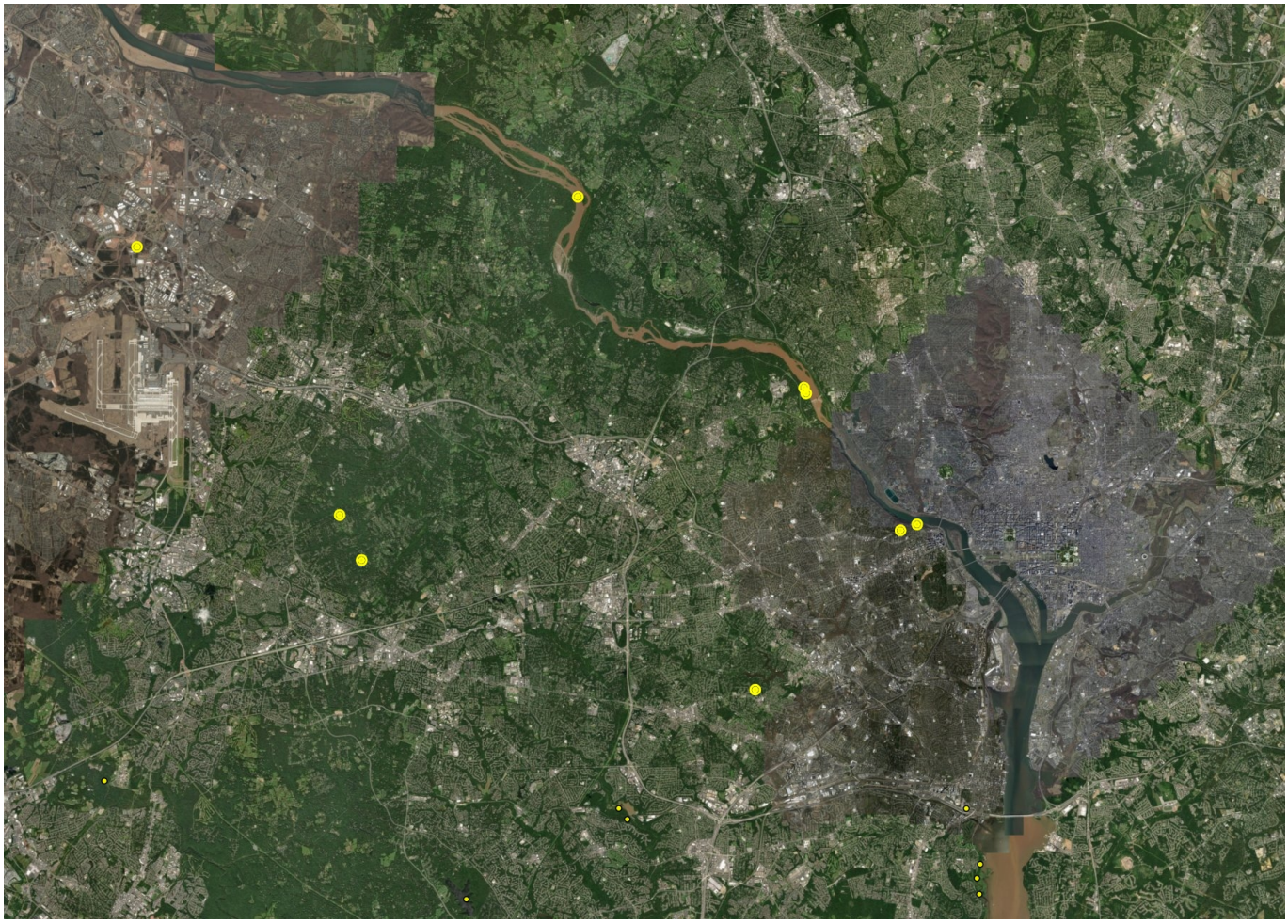
0 12.5 25 50 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

Dept. Game and Inland Fisheries

Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS |

CCB Mapping Portal



Layers: VA Eagle Nest Locator, VA Eagle Nest Buffers, Eagle Roosts, Eagle Roost Polygons, Eagle Roost Buffers

Map Center [longitude, latitude]: [-77.2119140625, 38.94232097947902]

Map Link:
https://ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&layer=VA+Eagle+Nest+Buffers&layer=Eagle+Roosts&layer=Eagle+Roost+Polygons&layer=Eagle+Roost+Buffers&zoom=12&lat=38.94232097947902&lng=-77.2119140625&base=World+Imagery+%28ESRI%29

Report Generated On: 11/18/2019

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith
Deputy Director of Operations

December 20, 2019

Samantha Stratton
Kimley-Horn and Associates
11400 Commerce Park Drive, Suite 400
Reston, VA 20191

Re: UPC 113414, I-495 Next Express Lanes Northern Extension

Dear Ms. Stratton:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Potomac Gorge Conservation Site is located within the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Potomac Gorge Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Maianthemum stellatum	Starry Solomon's-plume	G5/S1S2/NL/NL
Phacelia covillei	Coville's phacelia	G3/S1/NL/NL
Gomphus fraternus	Midland Clubtail	G5/S2/NL/NL
Boechera dentata	Short's rock cress	G5/S1/NL/NL
Silene nivea	Snowy Campion	G4?/S1/NL/NL
Gomphus fraternus	Midland Clubtail	G5/S2/NL/NL
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	G5T5/S1/NL/NL
Piedmont / Northern Coastal Plain Basic Seepage Swamp		G4G5/S2?/NL/NL
Central Appalachian / Piedmont Basic Mesic Forest (Twinleaf - Blue Cohosh Type)		G4G5/S4/NL/NL
Central Appalachian / Piedmont Low-Elevation Rich Boulderfield Forest		G3G4/S2S3/NL/NL
Coastal Plain / Outer Piedmont Basic Mesic Forest		G4?/ S3/NL/NL
Northern Coastal Plain / Piedmont Mesic Mixed Hardwood Forest		G5/S5/NL/NL

In addition, Tall Thistle (*Cirsium altissimum*, G5/S1/NL/NL), Wild cucumber (*Echinocystis lobata*, G5/SH/NL/NL), Smartweed Dodder (*Cuscuta polygonorum*, G5/S1/NL/NL), Northern rattlesnake-master

(*Eryngium yuccifolium var. yuccifolium*, G5T5/S2/NL/NL), One-sided shinleaf (*Orthilia secunda*, G5/SH/NL/NL) and Pizzini's Amphipod (*Stygobromus pizzinii*, G3G4/S1S2/NL/NL) have been historically documented within the project site.

Furthermore, according to a DCR biologist, there is potential for the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL) and other *Stygobromus* amphipod species to occur within the portion of the project site along the George Washington Memorial Parkway.

DCR recommends avoidance of impacts to documented occurrences of natural heritage resources by limiting the project footprint to the greatest extent possible, including along the steep bluff on the eastern side of I-495 along the Potomac River. Due to the potential for this site to support additional populations of natural heritage resources, DCR also recommends an inventory for the resources within areas proposed for disturbance including stormwater management ponds and equipment staging areas. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss arrangements for fieldwork.

In addition, the proposed project will fragment two C4 Ecological Cores as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

Therefore minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. The deleterious effects of fragmentation can be reduced by minimizing edge in remaining fragments; by retaining natural corridors that allow movement between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

A fee of $120.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 600 East Main Street, 24th Floor, Richmond, VA 23219.** Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2013. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyler Meader

Tyler Meader
Natural Heritage Locality Liaison

CC: Troy Andersen, USFWS

Stratton, Samantha

From: rachel_case@fws.gov on behalf of Virginia Field Office, FW5 <virginiafieldoffice@fws.gov>
Sent: Thursday, January 9, 2020 9:31 AM
To: Stratton, Samantha
Subject: Re: [EXTERNAL] Project Review: I-495 NEXT UPC #113414 - Fairfax County, VA

Categories: External

Hi Samantha,

We have no further comments on this project. For future reference, if the northern long-eared bat (NLEB) is the only species on your Official Species List, and you have utilized the determination key for this species--you do not need to submit anything to our office for review; the verification letter generated by that key fulfills your section 7 requirements with our office. Moreover, if you do have additional species, aside from the NLEB, you will need to submit a project package.

All the best,
Rachel

On Wed, Jan 8, 2020 at 11:48 AM Stratton, Samantha <Samantha.Stratton@kimley-horn.com> wrote:

> Rachel,
>
> Please confirm that your agency has no further comment on our determinations regarding this project.
>
> Thank you,
>
> **Samantha Stratton** | Environmental Analyst
> **Kimley-Horn** | 11400 Commerce Park Drive Suite 400 Reston, VA 20191
> Direct: 703 462 2706 | www.kimley-horn.com
>
>
>
> **From:** Stratton, Samantha
> **Sent:** Tuesday, November 26, 2019 3:45 PM
> **To:** Virginia Field Office, FW5 <virginiafieldoffice@fws.gov>; rachel_case@fws.gov
> **Subject:** RE: [EXTERNAL] Project Review: I-495 NEXT UPC #113414 - Fairfax County, VA

Hi Rachel,

We're in NEPA right now and we're not sure of impacts yet, but it can be preliminarily assumed that all 103 acres in the LOD will be cleared. I also have attached the NLEB determination key to this email for your reference.

Thank you,

Samantha Stratton | Environmental Analyst
Kimley-Horn | 11400 Commerce Park Drive Suite 400 Reston, VA 20191
Direct: 703 462 2706 | www.kimley-horn.com

Celebrating 12 years as one of FORTUNE's 100 Best Companies to Work For

From: rachel_case@fws.gov <rachel_case@fws.gov> **On Behalf Of** Virginia Field Office, FW5
Sent: Tuesday, November 26, 2019 2:57 PM
To: Stratton, Samantha <Samantha.Stratton@kimley-horn.com>
Subject: Re: [EXTERNAL] Project Review: I-495 NEXT UPC #113414 - Fairfax County, VA

Samantha,

Thank you for your project submission. Will this project require any tree removal?

Regards,

Rachel

On Thu, Nov 21, 2019 at 7:55 PM Stratton, Samantha <Samantha.Stratton@kimley-horn.com> wrote:

Citrix Attachments Expires May 19, 2020

495_AllUSFWS_111919.pdf 29.2 MB

Download Attachments

Samantha Stratton uses Citrix Files to share documents securely.

On behalf of Robert Iosco (Robert.Iosco@vdot.virginia.gov, (703) 259-2764) at the Virginia Department of Transportation (VDOT):

We have reviewed the referenced project using the Virginia Field Office's online project review process and have followed all guidance and instructions in completing the review. We completed our review on November 19, 2019 and are submitting our project review package in accordance with the instructions for further review.

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA) as the lead federal agency, is evaluating an extension of the Interstate 495 (I-495) Express Lanes between Tysons and the Virginia State Line. We are requesting your comments on potential effects to threatened and endangered species found within the study area in order to complete our technical reports for NEPA documentation. A project description can be seen below:

The Build Alternative would extend the existing four I-495 Express Lanes from their current terminus between the I-495/Route 267 interchange and the Old Dominion Drive Overpass north approximately 2.3 miles to the George Washington Memorial Parkway (GWMP). Additional improvements are anticipated to extend approximately 0.3 miles north of the GWMP to provide a tie-in to the existing road network at the American Legion Memorial Bridge (ALMB). The Build Alternative would retain the existing number of general purpose (GP) lanes in each direction between the I-495/Route 267 interchange and the ALMB, consistent with the configuration of the existing I-495 Express Lanes. Direct access ramps would be provided from the I-495 Express Lanes to the Dulles Toll Road and the GWMP. Access would also be provided between the Express Lanes and GP lanes.

According to USFWS IPaC, the Northern Long-Eared Bat (*Myotis septentrionalis*) is listed as a species of concern for the project. No winter hibernacula or maternity roosts were identified in the study area according to NLEB and MYLU & PESU Habitat Mappers, nor were any eagle nests identified on the CCB Bald Eagle Mapper. The enclosed project review package provides the information about the species, critical habitat, and bald eagles considered in our review, official species list, self-certification letter, and the species conclusions table which identifies our determinations for the resources that may be affected by the project. According to the 2016

Virginia Land Cover Dataset provided by the Virginia Geographic Information Network (VGIN) , there are 103 acres of forestland within our Limits of Disturbance (smaller than the study area shown in figures provided) that we are assuming will be impacted. Also attached are the database results and project mapping. Due to network issues on the USFWS IPaC website the Verification Letter for the NLEB Determination Key is not included in this packet, but will be sent as soon as possible.

We would appreciate your concurrence on our findings or any other comments USFWS may have.

Thank you,

Samantha Stratton | Environmental Analyst
Kimley-Horn | 11400 Commerce Park Drive Suite 400 Reston, VA 20191
Direct: 703 462 2706 | www.kimley-horn.com

Stratton, Samantha

From: ernie.aschenbach@dgif.virginia.gov on behalf of ProjectReview (DGIF), rr <projectreview@dgif.virginia.gov>
Sent: Wednesday, February 12, 2020 12:40 PM
To: Stratton, Samantha; Robert Iosco; rr ProjectReview (DGIF); Troy Andersen; rr vdotprojects
Subject: Re: Attn: Ernie Aschenbach - I-495 NEXT - UPC #113414

Categories: External

ESSLog 30346; Consultant administered VDOT extension of the Interstate 495 (I-495) Express Lanes between Tysons and the Virginia State Line (scoping request)

Due to staffing limitations, we are unable to review and provide preliminary scoping comments on projects that are not currently involved in one of the regulatory review processes for which we are a formal consulting agency (see https://www.dgif.virginia.gov/environmental-programs/). If your project subsequently requires a permit or environmental review which involves our Department, we will provide comments through that process to the appropriate agencies. Thank you for soliciting our review of your project, and we invite you to conduct your own review of your project through the Virginia Fish and Wildlife Information Service (VAFWIS) at: http://vafwis.org/fwis/.

Thank you for providing the above-referenced preliminary search results. We offer the following recommendations:

Cross-reference VAFWIS Bald Eagle nest presence/absence with CCB: We recommend performing an updated search of bald eagle nests known from the area using the Center for Conservation Biology (CCB) website to evaluate whether active bald eagle nests are known from the project area: http://www.ccbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/.

Impacts to bats and bat habitat: If tree removal or forest management is anticipated, project design and construction should adhere to our standard protocols for bat habitat assessment and protection at:

http://www.dgif.virginia.gov/wildlife/bats/little-brown-bat-tri-colored-bat-winter-habitat-roosts-application/

and;

http://www.dgif.virginia.gov/wildlife/bats/northern-long-eared-bat-application/.

Incidental take and best management practices to protect bats: In addition, the project should incorporate the recommendations in the Department's *Guidance Document on Best Management Practices for Conservation of Little Brown Bats and Tri-Colored Bats*, at: https://www.dgif.virginia.gov/wp-content/uploads/LBBA_TCBA_Guidance.pdf.

If the project proponent elects not to adhere to these recommendations, they may opt to prepare a Conservation Plan to address incidental take of these state-endangered bats. For additional guidance we recommend the proponent refer to our *Best Management Practices* referenced above, and contact DGIF's Bat Biologist, Rick Reynolds, at (540) 248-9360.

Distribution of our standard awareness guidance for the ST wood turtle to all VDOT staff and contractors: https://www.dgif.virginia.gov/wp-content/uploads/Wood-Turtle-Field-Observation-Form.pdf and strict adherence to our standard guidelines for VDOT projects protective of ST wood turtles.

If instream work becomes necessary, we anticipate a Joint Permit Application (JPA) will be distributed for agency review. We will review the JPA and provide comments as appropriate. Thanks.

Ernie Aschenbach
Environmental Services Biologist
P 804.367.2733
Email: Ernie.Aschenbach@dgif.virginia.gov
Virginia Department of Game & Inland Fisheries
CONSERVE. CONNECT. PROTECT.
A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228-0778
www.dgif.virginia.gov

On Mon, Feb 10, 2020 at 11:12 AM Stratton, Samantha <Samantha.Stratton@kimley-horn.com> wrote:

> Good morning Ernie,
>
> Following up again with you to confirm that your agency has no further comments on our determinations regarding this project.
>
> Thank you!
>
> **Samantha Stratton** | Environmental Analyst
> **Kimley-Horn** | 11400 Commerce Park Drive Suite 400 Reston, VA 20191
> Direct: 703 462 2706 | www.kimley-horn.com
>
> Celebrating 12 years as one of FORTUNE's 100 Best Companies to Work For
>
> **From:** Stratton, Samantha
> **Sent:** Thursday, January 30, 2020 6:37 PM

To: ProjectReview (DGIF), rr <projectreview@dgif.virginia.gov>
Subject: RE: Attn: Ernie Aschenbach - I-495 NEXT - UPC #113414

Ernie,

Wanted to follow up again with you to confirm that your agency has no further comments on our determinations regarding this project.

Thank you,

Samantha Stratton | Environmental Analyst
Kimley-Horn | 11400 Commerce Park Drive Suite 400 Reston, VA 20191
Direct: 703 462 2706 | www.kimley-horn.com

From: Stratton, Samantha
Sent: Wednesday, January 8, 2020 11:50 AM
To: ProjectReview (DGIF), rr <projectreview@dgif.virginia.gov>
Subject: RE: Attn: Ernie Aschenbach - I-495 NEXT - UPC #113414

Ernie,

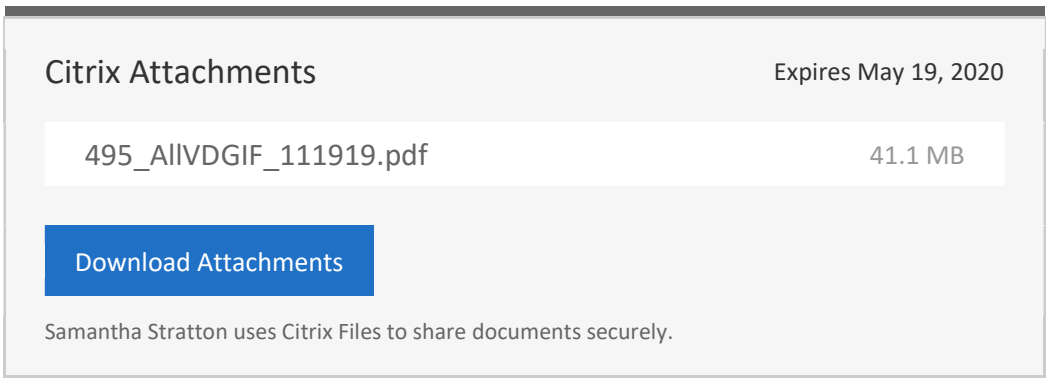
Please confirm that your agency has no further comment on our determinations regarding this project.

Thank you,

Samantha Stratton | Environmental Analyst
Kimley-Horn | 11400 Commerce Park Drive Suite 400 Reston, VA 20191
Direct: 703 462 2706 | www.kimley-horn.com

Celebrating 12 years as one of FORTUNE's 100 Best Companies to Work For

From: Stratton, Samantha
Sent: Thursday, November 21, 2019 7:45 PM
To: ProjectReview@dgif.virginia.gov
Cc: Gresham, Teresa <Teresa.Gresham@kimley-horn.com>; Krebs, Meridith <Meridith.Krebs@kimley-horn.com>; Prunty, Rob <Rob.Prunty@kimley-horn.com>; Iosco, Robert <robert.iosco@vdot.virginia.gov>
Subject: Attn: Ernie Aschenbach - I-495 NEXT - UPC #113414



On behalf of Robert Iosco (Robert.Iosco@vdot.virginia.gov, (703) 259-2764) at the Virginia Department of Transportation (VDOT):

Ernie,

The Virginia Department of Transportation (VDOT), in coordination with the Federal Highway Administration (FHWA) as the lead federal agency, is evaluating an extension of the Interstate 495 (I-495) Express Lanes between Tysons and the Virginia State Line. We are requesting your comments on potential effects to threatened and endangered species found within the study area in order to complete our technical reports for NEPA documentation. A project description can be seen below:

The Build Alternative would extend the existing four I-495 Express Lanes from their current terminus between the I-495/Route 267 interchange and the Old Dominion Drive Overpass north approximately 2.3 miles to the George

Washington Memorial Parkway (GWMP). Additional improvements are anticipated to extend approximately 0.3 miles north of the GWMP to provide a tie-in to the existing road network at the American Legion Memorial Bridge (ALMB). The Build Alternative would retain the existing number of general purpose (GP) lanes in each direction between the I-495/Route 267 interchange and the ALMB, consistent with the configuration of the existing I-495 Express Lanes. Direct access ramps would be provided from the I-495 Express Lanes to the Dulles Toll Road and the GWMP. Access would also be provided between the Express Lanes and GP lanes.

Based on a review of the VDGIF VaFWIS Search Report, there are confirmed observations of the Little-Brown Bat (*Myotis lucifugus*), the Tri-Colored Bat (*Perimyotis subflavus*), and the Wood Turtle (*Glyptemys insculpta*) within the study area. A figure showing the WERMS database results for these species and their proximity to the study area is attached. In addition, winter hibernacula and maternity roost trees were not identified on the NLEB or MYLU & PESU Habitat Mappers, nor were any eagle nests identified on the CCB Bald Eagle Mapper. According to the 2016 Virginia Land Cover Dataset provided by the Virginia Geographic Information Network (VGIN) , there are 103 acres of forestland within our Limits of Disturbance (smaller than the study area shown in figures provided) that we are assuming will be impacted. Also attached are the database results and project mapping.

We would appreciate your concurrence on our findings or any other comments DGIF may have.

Thank you,

Samantha Stratton | Environmental Analyst
Kimley-Horn | 11400 Commerce Park Drive Suite 400 Reston, VA 20191
Direct: 703 462 2706 | www.kimley-horn.com