W-E30

Wetland Photograph Page

Wetland ID W-E30

Photograph Direction NW

Date: 05/02/2015

Comments: 2015 wetland delineation.

Photograph Direction WSW

Date: 09/25/2018

Comments: 2018 revisit; permanent impact from access road construction

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Webster Sampling Date: 05/02/2015

Applicant/Owner: MVP State: WV Sampling Point: W-E30

Investigator(s): S Ryan, L Harloe, H Heist Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.441601 Long: -80.550888 Datum: NAD 83

Soil Map Unit Name: Atkins loam, moist, 0 to 3 percent slopes, frequently flooded NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PEM HGM: Riverine WT: RPWWN

Information listed on this form represents the data collected in 2015. The wetland was revisited on 09/25/2018 when a permanent access road was constructed through this area. The presence of wetland hydrology, hydrophytic vegetation, and hydric soils was unable to be confirmed because of construction activity within the road.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:
2015 notes:
Surface water present, but not in pit. Continues outside of access road ROW. This area is disturbed and sits between road and S-E30. Possible old road and garbage dumping.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-E30

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	20	✔	FACW
2. Packera aurea	5		FACW
3. Poa palustris	15	✔	FACW
4. Voila cucullata	10		FACW
5. Impatiens capensis	5		FACW
6. Carex lurida	20	✔	OBL
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-E30

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/1	85	10 YR 3/6	15	C	M/PL	CL	
10-20	10 YR 5/2	98	10 YR 3/6	2	C	M	CL	
					C			

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.441535	Lon.	-80.550864
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland (W-E30), 27.44ac watershed, HUC 12 watershed Headwaters Laurel Creek, riverine, RPWWN, palustrine emergent wetland adjacent to existing dirt road along stream				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	02-May-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-E30	Emergent	0.0316	Emergent
Total Impact		0.0316	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0316
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$1,896.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0316**	**Restoration**	**0.0316**		**-0.0316**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0316**		**0.0316**	**#DIV/0!**	**#DIV/0!**

W-F40

Wetland Photograph Page

Wetland ID W-F40 Date 05/04/2015

Photograph Direction NE

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Webster Sampling Date: 05/04/2015

Applicant/Owner: MVP State: WV Sampling Point: W-F40

Investigator(s): A. Flake, D. McCullough, E. Strohmaier Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.421332 Long: -80.570004 Datum: NAD 83

Soil Map Unit Name: Cotaco silt loam, 3 to 8 percent slopes NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PSS
HGM: RIVERINE
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-F40

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Alnus serrulata	30	✔	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Iris pseudacorus	10		OBL
2. Polygonum sp.	10		ND
3. Ranunculus acris	10		FAC
4. Poa palustris	60	✔	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not Determined

SOIL Sampling Point: W-F40

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					SiLo	
4-10	2.5Y 3/2	85	10YR 3/6	15	C	M	SiLo	
10-16	2.5Y 4/2	80	7.5YR 5/8	20	C	M	SaSiLo	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.421461	Lon.	-80.570007
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland F40 (W-F40), 202.561 ac watershed, HUC 12 watershed Upper Birch River, Riverine, RPWWD, scrub shrub wetland				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	04-May-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-F40	Scrub-Shrub	0.0188	Emergent
Total Impact		**0.0188**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0188**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$1,128.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0188**	**Restoration**	**0.0188**		**-0.0188**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0188**		**0.0188**	**#DIV/0!**	**#DIV/0!**

W-E18-PSS

Wetland Photograph Page

Wetland ID W-E18-PSS Date 04/29/2015

Photograph Direction SE

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Webster Sampling Date: 04/29/2015

Applicant/Owner: MVP State: WV Sampling Point: W-E18-PSS

Investigator(s): S Ryan, AJ Grech, H Heist Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRRN Lat: 38.367139 Long: -80.612127 Datum: NAD83

Soil Map Unit Name: Clifftop channery silt loam, 25 to 35 percent slopes NWI classification: PubHh

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

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

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

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

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

Remarks:
Cowardin Code: PSS
HGM: RIVERINE
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-E18-PSS

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Carpinus caroliniana	60	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 5')			
1. Barbarea vulgaris	10		OBL
2. Impatiens capensis	15		FACW
3. Juncus effusus	10		FACW
4. Viola septentrionalis	20	✔	FACU
5. Packera aurea	40	✔	FACW
6. Fragaria virginiana	5		FACU
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-E18-PSS

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/2	90	7.5YR 5/6	10	C	M	SA/LO	
8-20	Gley1 3/10Y	100					SA/LO	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ✔ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.367284	Lon.	-80.612248
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland E18 (W-E18), 52.64ac watershed, HUC 12 watershed Big Laurel Creek-Gauley River, riverine, RPWWD, scrub-shrub wetland along stream				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	29-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-E18-PSS	Scrub-Shrub	0.0538	Emergent
Total Impact		**0.0538**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0538**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$3,228.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0538**	**Restoration**	**0.0538**		**-0.0538**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0538**		**0.0538**	**#DIV/0!**	**#DIV/0!**

W-E13

Wetland Photograph Page

Wetland ID W-E13 Date 04/28/2015

Photograph Direction South

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Webster Sampling Date: 04/28/2015

Applicant/Owner: MVP State: WV Sampling Point: W-E13

Investigator(s): S Ryan, AJ Grech, H Heist Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRRN Lat: 38.363951 Long: -80.616565 Datum: NAD83

Soil Map Unit Name: Pope-Potomac complex, very cobbly NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PFO
HGM: DEPRESSION
WT: RPWWN

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:
Surface water present but not in plot. Soils contain high amount of gravel fill most likely associated with historic road construction. Several upland trees within delineated boundary.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-E13

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba	40	✔	FACU
2. Fraxinus pensylvanicum	20	✔	FACW
3. Acer rubrum	35	✔	FAC
4.			
5.			
6.			
7.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer rubrum	30	✔	FAC
2. Quercus rubra	10	✔	FACU
3. Carpinus carolinensis	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Herb Stratum (Plot size: 5')			
1. Packera aurea	15	✔	FACW
2. Solidago rugosa	10	✔	FAC
3. Fragaria virginiana	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (Plot size: 15')			
1. Smilax rotundifolium	10	✔	FACU
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-E13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 2.5/1	100					SI/L	Gravely
6-12	10YR 3/1	95	7.5YR 3/3	5	C	M	SA/L	
12-20	2.5Y 5/4	95	10YR 5/6	5	C	M	SI/SA	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.364017	Lon.	-80.616570
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland E13 (W-E13), 18.067 ac watershed, HUC 12 watershed Big Laurel Creek-Gauley River, Depressional, RPWWN, forested wetland				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	28-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-E13	Forested	0.0107	Emergent
Total Impact		**0.0107**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0107**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$642.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0107**	**Restoration**	**0.0107**		**-0.0107**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0107**		**0.0107**	**#DIV/0!**	**#DIV/0!**

W-FF6-PSS

Wetland Photograph Page

Wetland ID W-FF06-WP Date 07/29/2015

Photograph Direction North

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Sampling Date: 07/29/2015

Applicant/Owner: EQT State: WV Sampling Point: W-FF06-WP-PSS

Investigator(s): A. Flake. E strohmaier. A currano Section, Township, Range:

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

Subregion (LRR or MLRA): LRRN Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PSS
HGM: SLOPE/FLAT
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ✔ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No ✔	Depth (inches):
Water Table Present?	Yes ✔	No	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes ✔	No	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✔ **No**

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

Remarks:
Upland plot is W-FF06-UP

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-FF06-WP-PSS

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-FF06-WP-PSS

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5y3/1	100					Mucky Si	
3-7	2.5y2.5/1	90	5yr3/4	10	C	M/PL	SiLo	
7-11	2.5y3/2	90	2.5y4/4	10	C	M	SiLo	
11-16	2.5y4/1	85	10yr3/4	15	C	M	SiLo	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.337803	Lon.	-80.658933
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland FF6-PSS (W-FF6-PSS), 25.98ac watershed, HUC 12 watershed Big Laurel Creek-Gauley River, slope, RPWWN, scrub-shrub wetland surrounded by emergent wetland				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	30-Jul-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-FF6-PSS	Scrub-Shrub	0.0333	Emergent
Total Impact		**0.0333**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0333**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$1,998.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction	
**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*	
Years	0
Sub-Total	0

Temporal Loss-Maturity	
**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*	
% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection	
% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	Perpetual
Sub-Total	0

Extended Upland Buffer Zone *Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation		
Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	0.0333	Restoration	0.0333		-0.0333
Scrub-Shrub	0		0		0
Forested	0		0		0
Open Water	0		0		0
Net-Total	0.0333		0.0333	#DIV/0!	#DIV/0!

W-A15

Wetland Photograph Page

Wetland ID W-A15 Date 04/30/2015

Photograph Direction South

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Nicholas Sampling Date: 04/30/2015

Applicant/Owner: MVP State: WV Sampling Point: W-A15

Investigator(s): J.Cook, J.Heule, K.Lew Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.323411 Long: -80.671027 Datum: NAD 83

Soil Map Unit Name: Lily loam, 8 to 15 percent slopes (LIC) NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PSS
HGM: RIVERINE
WT: RPWWD
Fringe between pss and pem. Veg is obviously disturbed by grazing. When it transitions to forest in the east, no longer wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes ✔ No _____ Depth (inches): > 20

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

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:
Geomorphic position with oxidized rhizospheres and nearby/abutting stream

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-A15

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	3		FACU
2. Prunus serotina	15	✔	FACU
3. Acer rubrum	12	✔	FAC
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Impatiens capensis	10	✔	FACW
2. Juncus effusus	25	✔	FACW
3. Lamium amplexicaule	4		ND
4. Viola sororia	10	✔	FAC
5. Taraxacum officinale	2		FACU
6. Trifolium repens	4		FACU
7. Symphotrichium sp.	8		FACW
8. Fragaria virginiana	1		FACU
9. Andropogons glomeratus	9		FACW
10.			
11.			
	73 = Total Cover		
50% of total cover: 36.5	20% of total cover: 14.6		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

Veg is grazed and disturbed.

ND - Not Determined

SOIL Sampling Point: W-A15

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9"	10YR 4/1	96	10YR 3/6	4	C	PL	SiCL	Oxidized rhizospheres
9-20"	10YR 5/1	90	10YR 5/8	10	C	PL	SiC	Pore lining

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

Good wetland soil

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.323735	Lon.	-80.670118
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland A15 (W-A15), 11.54ac watershed, HUC 12 watershed Big Beaver Creek, riverine, RPWWD, disturbed grazed understory				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	29-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-A15	Scrub-Shrub	0.0891	Emergent
Total Impact		0.0891	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0891
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$5,346.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0891**	**Restoration**	**0.0891**		**-0.0891**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0891**		**0.0891**	**#DIV/0!**	**#DIV/0!**

W-A14

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Nicholas Sampling Date: 04/29/2015

Applicant/Owner: MVP State: WV Sampling Point: W-A14

Investigator(s): J.cook, J.Heule, K.Lew Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.321467 Long: -80.670863 Datum: NAD 83

Soil Map Unit Name: Dekalb channery sandy loam, 15 to 35 percent slopes, extremely stony (D NWI classification: None

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

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

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

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

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

Remarks:

Cowardin Code: PFO
HGM: Riverine
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 18
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 18

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

Oxidized rhizospheres. Near stream.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-A14

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	30	✔	FACU
2. Acer rubrum	10	✔	FAC
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	7	✔	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	7 = Total Cover		
50% of total cover: 3.5	20% of total cover: 1.4		
Herb Stratum (Plot size: 5')			
1. Viola sorroria	20	✔	FAC
2. Polystichum acrostichoides	5		FACU
3. Osumunda cinnamonea	5		FACW
4. Impatiens capensis	8	✔	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	38 = Total Cover		
50% of total cover: 19	20% of total cover: 7.6		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

Forested wetland dominated by eastern hemlock and red maple.

SOIL

Sampling Point: W-A14

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	2.5 Y 6/1	90	7.5 YR 4/6	10	C	PL	Clay loam	Charcoal at 2 inches
8-20"	10 YR 5/2	90	10 YR 5/8	10	C	PL	Clay loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

Good wetland soils

Wetland Photograph Page

Wetland ID W-A14 Date 04/29/2015

Photograph Direction North

Comments:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.321643	Lon.	-80.670901
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland A14 (W-A14), 18.05ac watershed, HUC 12 watershed Big Beaver Creek, Riverine, RPWWD, mature woodland				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	29-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-A14	Forested	0.0374	Emergent
Total Impact		0.0374	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0374
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$2,244.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction	
**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*	
Years	0
Sub-Total	0

Temporal Loss-Maturity	
**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*	
% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection	
% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	Perpetual
Sub-Total	0

Extended Upland Buffer Zone *Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation		
Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	0.0374	Restoration	0.0374		-0.0374
Scrub-Shrub	0		0		0
Forested	0		0		0
Open Water	0		0		0
Net-Total	0.0374		0.0374	#DIV/0!	#DIV/0!

W-I7

Wetland Photograph Page

Wetland ID W-I7 Date 04/23/2015

Photograph Direction North

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Nicholas Sampling Date: 04/23/2015

Applicant/Owner: MVP State: WV Sampling Point: W-I7

Investigator(s): R Sparhawk, A Hatfield, M Brice Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.293451 Long: -80.676911 Datum: NAD 83

Soil Map Unit Name: Clifftop channery silt loam, 15 to 35 percent slopes, very stony (Cn NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PFO
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ✔ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✔ No _____ Depth (inches): 0.5

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 6

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-I7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	30	✔	FACU
2. Quercus rubra	25	✔	FACU
3. Acer rubrum	20	✔	FAC
4. Fagus grandifolia	15		FACU
5.			
6.			
7.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling/Shrub Stratum (Plot size: 15')			
1. Crataegus sp.	5	✔	ND
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 5')			
1. Osmunda cinnamomea	1	✔	FACW
2. Carex lurida	1	✔	OBL
3. Mimulus ringens	1	✔	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not Determined

*Vegetation not identified down to species not included in dominance test.

SOIL Sampling Point: W-I7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	90	10YR 4/6	10	C	M/PL	SL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✔ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.293453	Lon.	-80.677084
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland I7, (W-I7), 8.45ac watershed, HUC 12 watershed Big Beaver Creek, slope, NRPWW, mature woodland along stream				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	23-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-I7	Forested	0.0333	Emergent
Total Impact		0.0333	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0333
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$1,998.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction	
**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*	
Years	0
Sub-Total	0

Temporal Loss-Maturity	
**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*	
% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection	
% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	Perpetual
Sub-Total	0

Extended Upland Buffer Zone *Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation		
Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	0.0333	Restoration	0.0333		-0.0333
Scrub-Shrub	0		0		0
Forested	0		0		0
Open Water	0		0		0
Net-Total	0.0333		0.0333	#DIV/0!	#DIV/0!

W-J8

Wetland Photograph Page

Wetland ID W-J8

Photograph Direction East

Date: 04/23/2015

Comments: 2015 wetland delineation.

Photograph Direction South

Date: 10/11/19

Comments: 2019 wetland delineation confirmation.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Nicholas Sampling Date: 04/23/2015

Applicant/Owner: MVP State: WV Sampling Point: W-J8

Investigator(s): P Johnson L McCarrell C Sapusek Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.263181 Long: -80.688054 Datum: NAD 83

Soil Map Unit Name: Clifftop-Buchanan complex, 35 to 70 percent slopes, extremely stony (CoF) NWI classification: None

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

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

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

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

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

Remarks:

Cowardin Code: PFO HGM: Slope wetland WT: RPWWD
Information listed on this form represents the data collected in 2015. The wetland was revisited on 10/11/2019. Presence of wetland hydrology, hydrophytic vegetation, and hydric soils was confirmed using the USACE EMP Regional Supplement delineation methodology. The wetland was cleared of woody vegetation within LOD as part of Project construction in 2018. Vegetation listed on this form represents the vegetative community present in the wetland prior to the start of construction.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 1

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 4

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-J8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	✓	FAC
2. Betula allegheniensis	20	✓	FACW
3. Ulmus rubra	20	✓	FAC
4.			
5.			
6.			
7.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer rubrum	20	✓	FAC
2. Betula allegheniensis	20	✓	FACW
3. Ulmus rubra	20	✓	FAC
4. Sambucus nigra	5		FAC
5.			
6.			
7.			
8.			
9.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Herb Stratum (Plot size: 5')			
1. Dryopteris intermedia	15	✓	FACU
2. Packera aurea	10		FACW
3. Acer rubrum	25	✓	FAC
4. Viola sp	10		
5. Solidago sp	10		
6. Poa sp	3		
7.			
8.			
9.			
10.			
11.			
	73 = Total Cover		
50% of total cover: 36.5	20% of total cover: 14.6		
Woody Vine Stratum (Plot size: 15')			
1. Vitis sp	5	✓	ND
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not Determined

*Vegetation not identified down to species not included in dominance test.

SOIL Sampling Point: W-J8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	10YR 5/6	5	C	PL	SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 6

Hydric Soil Present? Yes ✓ No ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.263168	Lon.	-80.687930
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland J8 (W-J8), 63.07ac watershed, HUC 12 watershed Panther Creek-Gauley River, slope, RPWWD, forested wetland along stream				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	23-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-J8	Forested	0.0533	Emergent
Total Impact		**0.0533**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0533**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$3,198.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0533**	**Restoration**	**0.0533**		**-0.0533**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0533**		**0.0533**	**#DIV/0!**	**#DIV/0!**

W-J7

Wetland Photograph Page

Wetland ID W-J7 Date 04/21/2015

Photograph Direction North

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Nicholas Sampling Date: 04/21/2015

Applicant/Owner: MVP State: WV Sampling Point: W-J7

Investigator(s): P Johnson L McCarrell C Sapusek Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.233295 Long: -80.708058 Datum: NAD 83

Soil Map Unit Name: Buchanan channery fine sandy loam, 15 to 35 percent slopes, extr NWI classification: None

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

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

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

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

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

Remarks:

Cowardin Code: PFO
HGM: SLOPE
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ✔ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 0
Water Table Present?	Yes ✔	No _____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-J7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	35	✔	FAC
2. Fraxinus pennsylvanica	5		FACW
3. Ulmus americana	10	✔	FACW
4.			
5.			
6.			
7.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer rubrum	15	✔	FAC
2. Fraxinus pennsylvanica	15	✔	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Packera aurea	30	✔	FACW
2. Viola sp	10		ND
3. Acer rubrum	5		FAC
4. Impatiens capensis	5		FACW
5. Sambucus nigra	1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	51 = Total Cover		
50% of total cover: 25.5	20% of total cover: 10.2		
Woody Vine Stratum (Plot size: 15')			
1. Smilax laurifolia	3	✔	OBL
2. Multiflora rosa	3	✔	FACU
3.			
4.			
5.			
	6 = Total Cover		
50% of total cover: 3	20% of total cover: 1.2		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not Determined

SOIL Sampling Point: W-J7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1"	10YR 5/3	100					SCL	
1-6"	10YR 5/2	95	10YR 4/6	5	C	PL	SCL	
6-18"	10YR 6/2	85	10YR 5/6	15	C	M/PL	SCL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.233731	Lon.	-80.708250
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland J7 (W-J7), 17.73ac watershed, HUC 12 watershed Panther Creek-Gauley River, slope, RPWWD, forested wetland along stream				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	21-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-J7	Forested	0.0693	Emergent
Total Impact		0.0693	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0693
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$4,158.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0693**	**Restoration**	**0.0693**		**-0.0693**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0693**		**0.0693**	**#DIV/0!**	**#DIV/0!**

W-H35

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Nicholas Sampling Date: 04/20/2015

Applicant/Owner: MVP State: WV Sampling Point: W-H35

Investigator(s): A.Stott, A.Grech, D.McCullough Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-4%

Subregion (LRR or MLRA): LRRN Lat: 38.12415 Long: -80.735996 Datum: NAD 83

Soil Map Unit Name: Buchanan channery fine sandy loam, 15 to 35 percent slopes, extremely stony (BvE) NWI classification: None

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

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

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

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

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

Remarks:

Cowardin Code: PEM HGM: slope WT: RPWWN
Information listed on this form represents the data collected in 2015. The wetland was revisited on 10/16/2019. Presence of wetland hydrology, hydrophytic vegetation, and hydric soils was confirmed using the USACE EMP Regional Supplement delineation methodology.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Heavy rain previous day

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-H35

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Betula lenta	10	✓	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5')			
1. Scirpus atrovirens	10	✓	OBL
2. Viola cucullata	10	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-H35

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3"	2.5y 2/1	100					GrS	Coal slag
3-12"	10yr 5/1	95	10yr 5/6	5	C	M	Gr	
12+"								Refusal: CF

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Wetland Photograph Page

Wetland ID W-H35

Photograph Direction North

Date: 04/20/2015

Comments: 2015 wetland delineation.

Photograph Direction NW

Date: 10/16/19

Comments: 2019 wetland delineation confirmation.

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.124117	Lon.	-80.736018
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland H35 (W-H35) is an emergent wetland. Slope. RPWWN.				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	13-Feb-18	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-H35	Emergent	0.0177	Emergent
Total Impact		**0.0177**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0177**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	N

Estimated ILF Costs
$1,062.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0177**	**Restoration**	**0.0177**		**-0.0177**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0177**		**0.0177**	**#DIV/0!**	**#DIV/0!**

W-M22

Wetland Photograph Page

Wetland ID W-M22

Photograph Direction North

Date: 04/23/2015

Comments: 2015 wetland delineation.

Photograph Direction NE

Date: 10/17/19

Comments: 2019 wetland delineation confirmation.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Greenbrier Sampling Date: 04/23/2015

Applicant/Owner: MVP State: WV Sampling Point: W-M22

Investigator(s): A. Jennrich, J. Kovacs, M. Shaffer Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Flat to slightly concave Slope (%): 5

Subregion (LRR or MLRA): LRRN Lat: 38.060531 Long: -80.722693 Datum: NAD 83

Soil Map Unit Name: Gilpin channery silt loam, 3 to 15 percent slopes, very stony (GpC) NWI classification: None

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

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

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

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

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

Remarks:

Cowardin Code: PSS HGM: Slope WT: NRPWW
Information listed on this form represents the data collected in 2015. The wetland was revisited on 10/17/2019. Presence of wetland hydrology, hydrophytic vegetation, and hydric soils was confirmed using the USACE EMP Regional Supplement delineation methodology.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 2
Water Table Present?	Yes ✓	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-M22

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Sambucus nigra	50	✓	FAC
2. Rubus allegheniensis	35	✓	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	40	✓	FACW
2. Viola spp	5		ND
3. Impatiens capensis	5		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not Determined

SOIL Sampling Point: W-M22

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					L	
1-5	10YR 3/2	100					L	
5-7	10YR 4/2	95	10YR 3/6	5	C	PL	L	
7-8	10YR 4/2	90	5YR 4/6	10	C	M/PL	CL	
8-11	10YR 4/4	95	10YR 4/6	5	C	PL	CL	
11-15	10YR 5/2	91	10YR 2/1	5	D	M	CL	
			10YR 5/6	4	C	M		
15-17	10YR 4/2	96	10YR 4/6	4	C	M	CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project		COORDINATES:	Lat.	38.060661	Lon.	-80.722616
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)			Wetland M22 (W-M22), 5.55ac watershed, HUC 12 watershed Anglins Creek, slope, NRPWW				
FORM OF MITIGATION:	Mitigation Bank						
DATE:	23-Apr-16	WEATHER CONDITIONS:			PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-M22	Scrub-Shrub	0.0039	Emergent
Total Impact		0.0039	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0039
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$234.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0039**	**Restoration**	**0.0039**		**-0.0039**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0039**		**0.0039**	**#DIV/0!**	**#DIV/0!**

W-J6

Wetland Photograph Page

Wetland ID W-J6 Date 04/20/2015

Photograph Direction NW

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Greenbrier Sampling Date: 04/20/2015

Applicant/Owner: MVP State: WV Sampling Point: W-J6

Investigator(s): P Johnson L McCarrell C Sapusek Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRRN Lat: 38.053085 Long: -80.731699 Datum: NAD 83

Soil Map Unit Name: Cookport loam, 3 to 8 percent slopes NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PFO
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ✔ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ✔ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 1
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-J6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	25	✔	FAC
2. Betula lenta	5		FACU
3.			
4.			
5.			
6.			
7.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Sapling/Shrub Stratum (Plot size: 15')			
1. Betula lenta	5		FACU
2. Acer rubrum	25	✔	FAC
3. Betula alleghaniensis	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Herb Stratum (Plot size: 5')			
1. Osmundastrum cinnamomeum	40	✔	FACW
2. Sphagnum sp	10		ND
3. Sambucus nigra	5		FAC
4. Rubus sp	1		ND
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	56 = Total Cover		
50% of total cover: 28	20% of total cover: 11.2		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-J6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/4	100					SC	
6-18	10YR 5/2	60	10YR 5/6	40	C	M/PL	SC	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	38.053361	Lon.	-80.732198
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland J6 (W-J6), 7.71ac watershed, HUC 12 watershed Meadow Creek-Meadow River, slope, RPWWD, forested wetland surrounded by woodland and crossed by an existing access road culvert				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	20-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-J6	Forested	0.0744	Emergent
Total Impact		0.0744	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0744
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$4,464.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0744**	**Restoration**	**0.0744**		**-0.0744**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0744**		**0.0744**	**#DIV/0!**	**#DIV/0!**

W-HS1

Wetland Photograph Page

Wetland ID W-HS1 Date 04/17/2018

Photograph Direction North

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Greenbrier Sampling Date: 04/17/2018

Applicant/Owner: MVP State: WV Sampling Point: W-HS1

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

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 37.986454 Long: -80.758418 Datum: NAD 83

Soil Map Unit Name: Macove-Gilpin complex, 35 to 55 percent slopes, very stony NWI classification: None

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

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

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

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

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

Remarks: Cowardin Code: PEM HGM: Depressional Water Type: NRPWW

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ✓ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 1-8
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-HS1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix nigra	5	✓	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	30	✓	OBL
2. Scirpus cyperinus	20	✓	FACW
3. Juncus effusus	15	✓	FACW
4. Dichanthelium clandestinum	10		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-HS1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 2.5/1	100					Mk	
1-5	N 2.5/0	100					-	Coal Fines
5+								Refusal - Compacted Coal Fine

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ✓ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Compacted Coal Fines

Depth (inches): 5+

Hydric Soil Present? Yes ✓ No ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project		COORDINATES:	Lat.	37.986454	Lon.	-80.758418
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)			Wetland HS1 (W-HS1), 0.86 acre watershed, HUC 12 watershed Mill Creek-Meadow River, depressional, RPWWN.				
FORM OF MITIGATION:	Mitigation Bank						
DATE:	4/20/2016	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:			

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-HS1	Emergent	0.036	Emergent
Total Impact		**0.036**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.036**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$2,160.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.036**	**Restoration**	**0.036**		**-0.036**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.036**		**0.036**	**#DIV/0!**	**#DIV/0!**

W-QR2

Wetland Photograph Page

Wetland ID W-QR2 Date 04/20/2016

Photograph Direction West

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Greenbrier Sampling Date: 04/20/2016

Applicant/Owner: MVP State: WV Sampling Point: W-QR2

Investigator(s): D Hadersbeck, J McGuirk, C Sapusek Section, Township, Range: N/A

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

Subregion (LRR or MLRA): LRR N Lat: 37.983391 Long: -80.756075 Datum: NAD 83

Soil Map Unit Name: Po - Pope fine sandy loam, warm, 0 to 3 percent slopes, occasionally flooded NWI classification: None

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

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

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

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

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

Remarks: Cowardin Code: PEM HGM: Slope Water Type: RPWWD

Abuts S-I29.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-QR2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	4		FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	4 = Total Cover		
50% of total cover: 2	20% of total cover: 0.8		
Herb Stratum (Plot size: 5')			
1. Packera aurea	50	✔	FACW
2. Viola sp.	10		ND
3. Verbesina alternifolia	5		FAC
4. Carex sp.	15		ND
5. Juncus effusus	15		FACW
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

No trees rooted in wetland

ND - Indicator Status Not Determined

Plants not identified to species were not used in the dominance test

SOIL Sampling Point: W-QR2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/1	85	7.5YR 5/6	15	C	M/PL	ClL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project		COORDINATES:	Lat.	37.983978	Lon.	-80.756817
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)			Wetland QR2 (W-QR2), 12.992 ac watershed, HUC 12 watershed Mill Creek-Meadow River, Slope, RPWWD, emergent wetland				
FORM OF MITIGATION:	Mitigation Bank						
DATE:	4/20/2016	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:			

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-QR2	Emergent	0.001	Emergent
Total Impact		0.001	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.001
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	y

Estimated ILF Costs
$60.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.001**	**Restoration**	**0.001**		**-0.001**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.001**		**0.001**	**#DIV/0!**	**#DIV/0!**

W-IJ47

Wetland Photograph Page

Wetland ID W-IJ47-PEM Date 08/13/2016

Photograph Direction WSW

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Greenbrier Sampling Date: 08/13/2016

Applicant/Owner: MVP State: WV Sampling Point: W-IJ47-PEM

Investigator(s): E. Foster, S. Ryan, A. Carrano Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR N Lat: 37.916562 Long: -80.74363 Datum: NAD 83

Soil Map Unit Name: McC-Macove channery silt loam, 3 to 15 percent slopes, very stony NWI classification: PSS/EM1A

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

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

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

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

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

Remarks: Cowardin Code: PEM HGM: Riverine Water Type: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✔ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

Recent historic floods in Greenbrier within past 1.5 months. Prevalent sediment deposits and drainage patterns not included as indicators due to recent floods. Abuts S-IJ53.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-IJ47-PEM

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Eleocharis microcarpa	60	✔	OBL
2. Vernonia noveboracensis	40	✔	FACW
3. Lobelia cardinalis	15		FACW
4. Viola sp.	4		ND
5. Hypericum mutilum	3		FACW
6. Pseudognaphalium obtusifolium	3		UPL
7.			
8.			
9.			
10.			
11.			
	125 = Total Cover		
50% of total cover: 62.5	20% of total cover: 25		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-IJ47-PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	80	7.5YR 4/6	20	C	M/PL	SiL	
10-20	10YR 4/2	80	7.5YR 4/6	20	C	M/PL	SaL	very fine sandy loam

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	37.916255	Lon.	-80.743867
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland IJ47-PEM, 208.593 ac watershed, HUC 12 watershed Sewell Creek, Riverine, RPWWD, emergent and forested wetland Multiple wetland crossing impacts combined on SWVM form Additional impact location: 37.916423, -80.743551				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	8/13/2016	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-IJ47-PEM	Emergent	0.052	Emergent
W-IJ47-PEM	Emergent	0.0113	Emergent
Total Impact		**0.0633**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0633**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$3,798.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0633**	**Restoration**	**0.0633**		**-0.0633**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0633**		**0.0633**	**#DIV/0!**	**#DIV/0!**

W-UV4

Wetland Photograph Page

Wetland ID W-UV4 Date 06/11/2016

Photograph Direction SW

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Greenbrier Sampling Date: 06/11/2016

Applicant/Owner: MVP State: WV Sampling Point: W-UV4

Investigator(s): C.Stoliker, L.McCarrell, J. Niergarth Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR or MLRA): LRR N Lat: 37.854417 Long: -80.755145 Datum: NAD 83

Soil Map Unit Name: Shouns channery silt loam, 15 to 35 percent slopes, extremely stony NWI classification: None

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

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

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

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

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

Remarks: Cowardin Code: PSS HGM: Slope Water Type: RPWWD

Open ended to the east, changes to PEM

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 3

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-UV4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix nigra	85	✔	OBL
2. Rosa multiflora	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Herb Stratum (Plot size: 5')			
1. Carex lurida	50	✔	OBL
2. Carex scoparia	35	✔	FACW
3. Carex stricta	15		OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-UV4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 4/2	70	10YR 5/8	10	C	M	SICL	
	7.5YR 5/2	20						

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Course fragments

Depth (inches): 10

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	37.854391	Lon.	-80.755038
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland UV4 (W-UV4), 26.071 ac watershed, HUC 12 watershed Otter Creek-Meadow River, Slope, RPWWD, scrub shrub wetland				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	6/11/2016	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-UV4	Scrub-Shrub	0.0885	Emergent
Total Impact		0.0885	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.0885
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$5,310.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0885**	**Restoration**	**0.0885**		**-0.0885**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0885**		**0.0885**	**#DIV/0!**	**#DIV/0!**

W-I10

Wetland Photograph Page

Wetland ID W-I10

Photograph Direction North

Date: 04/25/2015

Comments: 2015 wetland delineation.

Photograph Direction East

Date: 10/22/19

Comments: 2019 wetland delineation confirmation.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Summers Sampling Date: 04/25/2015

Applicant/Owner: MVP State: WV Sampling Point: W-I10

Investigator(s): RS AH MB Section, Township, Range: NA

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

Subregion (LRR or MLRA): LRRN Lat: 37.783850 Long: -80.718862 Datum: NAD 83

Soil Map Unit Name: Lily loam, 3 to 8 percent slopes NWI classification: None

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

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

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

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

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

Remarks:

Cowardin Code: PEM HGM: DEPRESSIONAL WT: NRPWW
Information listed on this form represents the data collected in 2015. The wetland was revisited on 10/22/2019. Presence of wetland hydrology, hydrophytic vegetation, and hydric soils was confirmed using the USACE EMP Regional Supplement delineation methodology.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 2-4
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 4

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Wetland area is highly disturbed and dissected with road cuts and past logging activities.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-I10

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	2	✓	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 0.4		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	4	✓	FACW
2. Carex lurida	10	✓	OBL
3. Typha spp	4	✓	OBL
4. Viola cucullata	3		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	21 = Total Cover		
50% of total cover: 10.5	20% of total cover: 4.2		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-I10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	5Y 5/2	80	10YR 4/6	20	C	M/PL	C	
4-12	5Y 5/2	100					C	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	37.783907	Lon.	-80.718899
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland I10 (W-I10), 9.42ac watershed, HUC 12 watershed Otter Creek-Meadow River, depressional, NRPWW, emergent wetland highly disturbed from past logging activities				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	25-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-I10	Emergent	0.055	Emergent
Total Impact		0.055	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.055
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$3,300.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.055**	**Restoration**	**0.055**		**-0.055**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.055**		**0.055**	**#DIV/0!**	**#DIV/0!**

W-MM20-PFO

Wetland Photograph Page

Wetland ID W-MM20 Date 12/11/2015

Photograph Direction North

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Summers Sampling Date: 12/11/2015

Applicant/Owner: MVP State: WV Sampling Point: W-MM20

Investigator(s): A.Stott, A.Grech Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): flloodplain Local relief (concave, convex, none): Concave Slope (%): 0-5%

Subregion (LRR or MLRA): LRRN Lat: 37.681389 Long: -80.725030 Datum: NAD 83

Soil Map Unit Name: Kanawha fine sandy loam (Ka), Lobdell loam (Lo), Udifluvents and Psamments (Ud) NWI classification: None

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

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

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

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

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

Remarks:
Cowardin Code: PFO
HGM: Depressional
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✔ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-MM20

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	15	✔	FACW
2. Acer rubrum	10	✔	FAC
3. Acer negundo	5		FAC
4.			
5.			
6.			
7.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Sapling/Shrub Stratum (Plot size: 15')			
1. Lindera benzoin	30	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Herb Stratum (Plot size: 5')			
1. Carex sp.	10	✔	ND
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

Flooded wetland from 4 culverts crossing road

ND - Not Determined

*Vegetation not identified down to species not included in dominance test.

SOIL

Sampling Point: W-MM20

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	7.5yr 4/1	88	5yr 4/6	12	C	M/PL	L	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ____

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	37.68158902	Lon.	-80.72880882
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland MM20-PFO (W-MM20-PFO), HUC 8 - Little Kanawha, Greenbrier River, DEPRESSIONAL, RPWWD, forested wetland				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	13-Feb-18	WEATHER CONDITIONS:	Cloudy/Dry	PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-MM20-PFO	Forested	0.299	Emergent
Total Impact		**0.299**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.299**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	Y

Estimated ILF Costs
$17,940.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.299**	**Restoration**	**0.299**	**0.3**	**0.001**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**	**1.75**	**1.75**
Open Water	**0**		**0**		**0**
Net-Total	**0.299**		**0.299**	**2.05**	**1.751**

W-A13

Wetland Photograph Page

Wetland ID W-A13 Date 04/10/2015

Photograph Direction East

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Monroe Sampling Date: 04/10/2015

Applicant/Owner: MVP State: WV Sampling Point: W-A13

Investigator(s): S.Yarbrough, C.Stoliker, J.Heule Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): Concave Slope (%): 3-5%

Subregion (LRR or MLRA): LRRN Lat: 37.55934 Long: -80.709849 Datum: NAD 83

Soil Map Unit Name: Udifluvents-Fluvaquents complex (Uf) NWI classification: None

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

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

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

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

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

Remarks:

Cowardin Code: PEM
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ✓ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 3
Water Table Present?	Yes ✓	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Wetland associated with ephemeral stream S-A60 & A61. Amphibian egg masses present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-A13

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	40	✓	FACW
2. Poa sp.	20	✓	ND
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

ND - Not Determined.

* Vegetation not ID'd to species level not included in dominance test.

SOIL Sampling Point: W-A13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	2.5Y 6/1	70	7.5YR 5/8	30	C	M/PL	SICL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project	COORDINATES:	Lat.	37.559332	Lon.	-80.709734
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)		Wetland A13 (W-A13), 3.474 ac watershed, HUC 12 watershed Middle Indian Creek, Slope, RPWWD, emergent wetland				
FORM OF MITIGATION:	Mitigation Bank					
DATE:	10-Apr-16	WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-A13	Emergent	0.0228	Emergent
Total Impact		**0.0228**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.0228**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs
$1,368.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.0228**	**Restoration**	**0.0228**		**-0.0228**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**		**0**
Open Water	**0**		**0**		**0**
Net-Total	**0.0228**		**0.0228**	**#DIV/0!**	**#DIV/0!**

W-MN18-PFO

Wetland Photograph Page

Wetland ID W-MN18-PFO Date 01/08/2018

Photograph Direction South

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Monroe Sampling Date: 01/08/2018

Applicant/Owner: MVP State: WV Sampling Point: W-MN18-PFO

Investigator(s): S. Ryan, J. Potrikus Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR or MLRA): LRR N Lat: 37.487353 Long: -80.681607 Datum: NAD 83

Soil Map Unit Name: CIE NWI classification: None

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

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

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

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

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

Remarks: Cowardin Code: PFO HGM: Riverine Water Type: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** ✔ **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-MN18-PFO

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	25	✔	FACW
2. Fraxinus pennsylvanica	20	✔	FACW
3. Carpinus caroliniana	15	✔	FAC
4.			
5.			
6.			
7.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum (Plot size: 15')			
1. Carpinus caroliniana	10	✔	FAC
2. Aesculus flava	7	✔	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	17 = Total Cover		
50% of total cover: 8.5	20% of total cover: 3.4		
Herb Stratum (Plot size: 5')			
1. Rosa multiflora	30	✔	FAC
2. Packera aurea	15	✔	FACW
3. Carex sp.	5		ND
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Delineation outside of the growing season limits the identification of all individuals to species level due to lack of characteristic vegetative anatomy. Documented individuals not identified to species level were excluded from calculations.

SOIL Sampling Point: W-MN18-PFO

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

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Soil frozen and impenetrable.

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project		COORDINATES:	Lat.	37.487442	Lon.	-80.681752
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)			Wetland MN18 (W-MN18-PFO), HUC 8 - Upper New, Headwaters Blue Lick Creek, RIVERINE, RPWWD, Forested wetland				
FORM OF MITIGATION:	Mitigation Bank						
DATE:	13-Feb-18	WEATHER CONDITIONS:	Cloudy/Dry		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-MN18-PFO	Forested	0.175	Emergent
Total Impact		**0.175**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.175**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	Y

Estimated ILF Costs
$10,500.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.175**	**Restoration**	**0.175**	**0.3**	**0.125**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**	**1.75**	**1.75**
Open Water	**0**		**0**		**0**
Net-Total	**0.175**		**0.175**	**2.05**	**1.875**

W-CV25-PSS-1

Wetland Photograph Page

Wetland ID W-CV25-PS Date 01/09/2018

Photograph Direction South

Comments:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: MVP City/County: Monroe Sampling Date: 01/09/2018

Applicant/Owner: MVP State: WV Sampling Point: W-CV25-PSS

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

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 2-3

Subregion (LRR or MLRA): LRR N Lat: 37.46302 Long: -80.669602 Datum: NAD 83

Soil Map Unit Name: Ernest silt loam, warm, 3 to 8 percent slope NWI classification: None

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

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

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

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

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

Remarks: Cowardin Code: PSS HGM: Slope Water Type: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

Due to consistent below freezing temperatures unable to verify subsurface hydrology indicators.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CV25-PSS

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	15	✔	FACU
2. Acer negundo	10	✔	FAC
3. Cornus florida	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Onoclea sensibilis	15	✔	FACW
2. Agrimonia parviflora	15	✔	FACW
3. Packera aurea	10	✔	FACW
4. Juncus effusus	5		FACW
5. Hypericum prolificum	5		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✔ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

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

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-CV25-PSS

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

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ✔ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Due to consistent below freezing temperatures unable to test soil.

USACE FILE NO./Project Name:	Mountain Valley Pipeline Project		COORDINATES:	Lat.	37.46295334	Lon.	-80.66957561
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)			Wetland CV25-PSS-1 (W-CV25-PSS-1), HUC 8 - Upper New, Headwaters Blue Lick Creek, Slope, RPWWD, scrub-shrub wetland				
FORM OF MITIGATION:	Mitigation Bank						
DATE:	13-Feb-18	WEATHER CONDITIONS:	Cloudy/Dry		PRECIPITATION PAST 48 HRS:		

PART I - Wetland Indicators

Impact Wetland ID:	Impact Wetland Classification	Impacts (acreage)	Mitigation Wetland Classification
W-CV25-PSS-1	Scrub-Shrub	0.027	Emergent
Total Impact		**0.027**	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	**0.027**
Total Scrub-Shrub	**0**
Total Forested	**0**
Total Open Water	**0**

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	Y

Estimated ILF Costs
$1,620.00

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	**0**
Sub-Total	**0**

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	**0**
Sub-Total	**0**

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	**Perpetual**
Sub-Total	**0**

Extended Upland Buffer Zone

***Note[1]: Reference Instructional handout for the definitions of the Buffer Zone Mitigation**

Average Buffer Width	Mitigation Type	
0	0-50	None
	51-150	None

PART V - Final Unit Score

Wetland Classification	Replacement Index	Form of Mitigation	Adjusted Final Unit Score to Offset (Debit)	Applicant Input Mitigation (Credit)	Balance
Emergent	**0.027**	**Restoration**	**0.027**	**0.3**	**0.273**
Scrub-Shrub	**0**		**0**		**0**
Forested	**0**		**0**	**1.75**	**1.75**
Open Water	**0**		**0**		**0**
Net-Total	**0.027**		**0.027**	**2.05**	**2.023**