AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 019

Date:

June 2, 2020

Description:

PEM wetland

Category 2

Facing South

Wetland 019

Date:

June 2, 2020

Description:

PEM wetland

Category 2

Facing West

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 019

Date:

June 2, 2020

Description:

PEM wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Perry **Sampling Date:** 02-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200602-02**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 2 **T** 16N **R** 15W

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** concave **Slope:** 3.0 **% /** 71.6 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.81888 **Long.:** -82.1547 **Datum:** NAD83

Soil Map Unit Name: AfC - Alford silt loam, 8 to 15 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point in for PEM wetland 020. Wetland is located on 2 sides of pond 08 (p-bl-20200602-01) and swale draining into pond, wetland extends to west outside study area. Pond drains to east to wetland w-bl-20200602-01 that drains to east to subsurface drainage (tile or buriend culvert) that goes to east to floodplain of large creek.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	6
Water Table Present?	**Yes** ◉ **No** ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	**Yes** ◉ **No** ○	Depth (inches):	0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

Multiple primary and secondary hydrology indicators present. Primary source of hydrology is concentration of precipitation and surface runoff into drainage swale and overflow from agricultural pond p-bl-20200602-01, drains to pond that drains to east to wetland w-bl-20200602-01 that drains east to outside study area to subsurface drain (field tile or buried culvert) under roadway to floodplain of large creek.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200602-02

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1. Salix interior	5	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	5	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Rosa multiflora	5	☑	71.4%	FACU
2. Salix nigra	1	☐	14.3%	OBL
3. Fraxinus pennsylvanica	1	☐	14.3%	FACW
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	7	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Phalaris arundinacea	30	☑	34.9%	FACW
2. Juncus effusus	10	☑	11.6%	FACW
3. Leersia virginica	10	☑	11.6%	FACW
4. Najas minor	10	☑	11.6%	OBL
5. Carex vulpinoidea	5	☐	5.8%	OBL
6. Onoclea sensibilis	5	☐	5.8%	FACW
7. Lemna minor	5	☐	5.8%	OBL
8. Wolffia globosa	5	☐	5.8%	OBL
9. Agrostis gigantea	3	☐	3.5%	FACW
10. Typha latifolia	3	☐	3.5%	OBL
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	86	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	29	x 1 =	29
FACW species	64	x 2 =	128
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	98 (A)		177 (B)

Prevalence Index = B/A = 1.806

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicators present as dominance test > 50%, dominant species are OBL, FACW and FACU.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200602-02

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]	Loc²	Texture	Remarks
0-4	10YR	4/2	100						Sandy Loam	
4-16	10Y	4/1	90	10YR	4/4	10	C	PL	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicator present as gleyed matrix in loamy soils starting less than or equal to 12" depth, also having redox concentrations in pore linings with low chroma/low value matrix

Upland 019

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Perry **Sampling Date:** 02-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200602-02**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 2 **T** 16N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 10.0 **% /** 84.3 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.8189 **Long.:** -82.15466 **Datum:** NAD83

Soil Map Unit Name: AfC - Alford silt loam, 8 to 15 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Point out to wetland 020 (Upland 019), about 5 feet north of boundary at slightly higher elevation. Not a wetland point, no wetland criteria met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	
Saturation Present? (includes capillary fringe)	**Yes** ○	**No** ◉	Depth (inches):	**Wetland Hydrology Present?** **Yes** ○ **No** ◉

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

Remarks:

No hydrology indicators present.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: upl-bl-20200602-02

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Rosa multiflora	2	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	2	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Schedonorus arundinaceus	30	☑	33.3%	FACU
2. Agrostis gigantea	20	☑	22.2%	FACW
3. Festuca rubra	15	☐	16.7%	FACU
4. Cirsium arvense	15	☐	16.7%	FACU
5. Elymus virginicus	5	☐	5.6%	FACW
6. Rumex crispus	5	☐	5.6%	FAC
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	90	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	5	x 3 =	15
FACU species	62	x 4 =	248
UPL species	0	x 5 =	0
Column Totals:	92 (A)		313 (B)

Prevalence Index = B/A = 3.402

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ○ **No** ◉

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

No hydrophytic vegetation indicators present, dominant species are FACW and FACU.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200602-02

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]	Loc²	Texture	Remarks
0-7	10YR	4/3	100						Sandy Loam	
7-16	10YR	5/1	80	10YR	4/2	20	D	M	Sandy Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

No hydric soil indicators present.

Site:	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:**	June 2, 2020
Wetland:	w-bl-20200602-02	**Rater:**	BL, SM

0 Subtotal | 0 Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

2 Subtotal | 2 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
x	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
x	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
x	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

24 Subtotal | 22 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
x	Seasonal/Intermittent surface water (3)
x	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
x	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
x	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

	Semi- to permanently inundated/saturated (4)
x	Regularly inundated/saturated (3)
	Seasonally inundated (2)
	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

	None or none apparent (12)
x	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☐ dike	☑ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☑ dredging
☐ stormwater input	☐ other- list

33 Subtotal | 9 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
x	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
x	Fair (3)
	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☑ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☐ selective cutting	☑ dredging
☐ woody debris removal	☑ farming
☐ toxic pollutants	☐ nutrient emrichment

33 subtotal this page

Site: Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:** June 2, 2020
Wetland: w-bl-20200602-02	**Rater:** BL, SM

33 subtotal first page

33 Subtotal | 0 Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

35 Subtotal | 2 Points

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

0	Aquatic bed
1	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
x	Moderately low (2)
	Low (1)
	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
x	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

1	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
1	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

35 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: modified 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 020

Date:

June 2, 2020

Description:

PEM wetland

Category 2

Facing North

Wetland 020

Date:

June 2, 2020

Description:

PEM wetland

Category 2

Facing East

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 020 **Date:** June 2, 2020 **Description:** PEM wetland Category 2 Facing South	

Wetland 020 **Date:** June 2, 2020 **Description:** PEM wetland Category 2 Facing West	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 020

Date:

June 2, 2020

Description:

PEM wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 02-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200602-03**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** concave **Slope:** 5.0 **% /** 78.7 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.82059 **Long.:** -82.1567 **Datum:** NAD83

Soil Map Unit Name: WuE2 - Westmoreland-Guernsey silt loams, 25 to 40 percent slopes, eroded **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point in for PSS wetland 021. Wetland is located on terrace of intermittent stream s-bl-20200602-01 both banks with groundwater seepage evident. Wetland fully delineated by topography.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	10
Saturation Present? (includes capillary fringe)	**Yes** ◉ **No** ○	Depth (inches):	0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

Multiple primary and secondary hydrology indicators present. Primary source of hydrology groundwater seepage as observed and overbank flow from intermittent stream s-bl-20200602-01.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200602-03

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Ulmus americana	3	☐	75.0%	FACW
2. Fraxinus americana	1	☐	25.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	4		= Total Cover	
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	
Herb Stratum (Plot size: 5' r)				
1. Carex lurida	20	☑	26.7%	OBL
2. Agrostis gigantea	10	☑	13.3%	FACW
3. Poa compressa	15	☑	20.0%	FACU
4. Lysimachia nummularia	10	☑	13.3%	FACW
5. Eupatorium perfoliatum	5	☐	6.7%	FACW
6. Valerianella umbilicata	5	☐	6.7%	FAC
7. Carex gracilescens	5	☐	6.7%	UPL
8. Symphyotrichum prenanthoides	5	☐	6.7%	FAC
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	75		= Total Cover	
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	20	x 1 =	20
FACW species	28	x 2 =	56
FAC species	10	x 3 =	30
FACU species	16	x 4 =	64
UPL species	5	x 5 =	25
Column Totals:	79 (A)		195 (B)

Prevalence Index = B/A = 2.468

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicators present as dominance test > 50%, dominant species are OBL, FACW and FACU.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200602-03

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]	Loc²	Texture	Remarks
0-4	10y	4/1	95	10YR	4/3	5	C	PL	Silt Loam	gleyed matrix
4-14	10Y	3/1	90	10YR	3/3	10	C	PL	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicator present as gleyed matrix in loamy soils starting less than or equal to 12" depth, also having redox concentrations in pore linings with low chroma/low value matrix

Upland 020

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 02-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200602-03**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 20.0 **% /** 87.1 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.82055 **Long.:** -82.15666 **Datum:** NAD83

Soil Map Unit Name: WuE2 - Westmoreland-Guernsey silt loams, 25 to 40 percent slopes, eroded **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Point out to wetland 021 (Upland 020), about 5 east of boundary. Not a wetland point, hydrophytic vegetation and hydrology criteria not met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):		
Saturation Present? (includes capillary fringe)	**Yes** ○	**No** ◉	Depth (inches):		**Wetland Hydrology Present?** **Yes** ○ **No** ◉

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

Remarks:

No hydrology indicators present.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: upl-bl-20200602-03

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Juglans nigra	5	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	5	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Valerianella umbilicata	30	☑	34.1%	FAC
2. Schedonorus arundinaceus	15	☑	17.0%	FACU
3. Solidago altissima	10	☐	11.4%	FACU
4. Daucus carota	10	☐	11.4%	UPL
5. Impatiens pallida	10	☐	11.4%	FACW
6. Barbarea vulgaris	5	☐	5.7%	FACU
7. Symphyotrichum pilosum	5	☐	5.7%	FAC
8. Erigeron philadelphicus	3	☐	3.4%	FACU
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	88	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	35	x 3 =	105
FACU species	38	x 4 =	152
UPL species	10	x 5 =	50
Column Totals:	93 (A)		327 (B)

Prevalence Index = B/A = 3.516

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ○ **No** ◉

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

No hydrophytic vegetation indicators present, dominant species are FAC and FACU.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200602-03

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]	Loc²	Texture	Remarks
0-6	10YR	4/3	90	10YR	5/1	10	D	M	Sandy Loam	
6-15	10Y	4/1	80	10YR	4/3	20	C	M	Sandy Clay Loam	gleyed matrix

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicator present as gleyed matrix in sandy soils starting less than or equal to 6" depth. Possible relict indicator from nearby stream dredging and spreading of spoils.

Site:	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:**	June 2, 2020
Wetland:	w-bl-20200602-03	**Rater:**	BL, SM

0 Subtotal | 0 Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

12 Subtotal | 12 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

x	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

27 Subtotal | 15 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
x	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
x	Part of wetland/upland (e.g. forest), complex (1)
x	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

	Semi- to permanently inundated/saturated (4)
	Regularly inundated/saturated (3)
	Seasonally inundated (2)
x	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

	None or none apparent (12)
x	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☐ dike	☑ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☑ dredging
☐ stormwater input	☐ other- list

36 Subtotal | 9 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
x	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
x	Fair (3)
	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☑ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☑ clearcutting	☐ sedimentation
☐ selective cutting	☑ dredging
☐ woody debris removal	☑ farming
☐ toxic pollutants	☐ nutrient emrichment

36 subtotal this page

Site: Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:** June 2, 2020
Wetland: w-bl-20200602-03	**Rater:** BL, SM

36 subtotal first page

36 Subtotal | 0 Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

42 Subtotal | 6 Points

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

0	Aquatic bed
2	Emergent
0	Shrub
0	Forest
0	Mudflats
0	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
x	Moderately low (2)
	Low (1)
	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
x	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

1	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

42 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: modified 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 021 **Date:** June 2, 2020 **Description:** PSS wetland Category 2 Facing North	

Wetland 021 **Date:** June 2, 2020 **Description:** PSS wetland Category 2 Facing East	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 021 **Date:** June 2, 2020 **Description:** PSS wetland Category 2 Facing South	

Wetland 021 **Date:** June 2, 2020 **Description:** PSS wetland Category 2 Facing West	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 021

Date:

June 2, 2020

Description:

PSS wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200601-05**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 15.0 **% /** 86.2 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 38.82142 **Long.:** -82.15778 **Datum:** NAD83

Soil Map Unit Name: WuE2 - Westmoreland-Guernsey silt loams, 25 to 40 percent slopes, eroded **NWI classification:**

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(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:

Sample point in for wetland 022 (w-bl-20200601-05), located within 2 swales on hillside. Wetland is fully delineated and drains to a upland drainage feature downslope to perennial stream s-bl-20200601-06.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	6

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

Multiple primary hydrology indicators present. Primary source of hydrology is concentration of precipitation and surface runoff in geomorphic position and abutting farm pond. Drains to northeast via UDF offsite to perennial stream s-bl-2020001-06.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200601-05

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. **Onoclea sensibilis**	30	☑	28.6%	FACW
2. **Carex frankii**	20	☑	19.0%	OBL
3. **Poa compressa**	15	☑	14.3%	FACU
4. **Phalaris arundinacea**	10	☐	9.5%	FACW
5. **Impatiens pallida**	10	☐	9.5%	FACW
6. **Carex spicata**	10	☐	9.5%	FAC
7. **Schedonorus arundinaceus**	5	☐	4.8%	FACU
8. **Valerianella umbilicata**	5	☐	4.8%	FAC
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	105	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	20	x 1 =	20
FACW species	50	x 2 =	100
FAC species	15	x 3 =	45
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	105 (A)		245 (B)

Prevalence Index = B/A = 2.333

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are OBL, FACW and FACU

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200601-05

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]	Loc²	Texture	Remarks
0-3	10Y	4/1	100						Clay Loam	gleyed matrix
3-18	10Y	5/1	90	10YR	5/6	10	C	PL	Clay Loam	gleyed matrix

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicators present as gleyed matrix with redox concentrations in pore linings

ORAM v. 5.0 Field Form Quantitative Rating

Site:	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:**	June 1, 2020
Wetland:	w-bl-20200601-05	**Rater:**	BL, SM

1 Subtotal | 1 Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
x	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
	<0.1 acres (0.04ha) (0 pts)

9 Subtotal | 8 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
x	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
x	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

28.5 Subtotal | 19.5 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
x	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
x	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

	Semi- to permanently inundated/saturated (4)
	Regularly inundated/saturated (3)
x	Seasonally inundated (2)
x	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

x	None or none apparent (12)
	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☐ dike	☐ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☐ dredging
☐ stormwater input	☐ other- list

38.5 Subtotal | 10 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

x	None or none apparent (4)
	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
x	Fair (3)
	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☑ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☐ selective cutting	☐ dredging
☐ woody debris removal	☐ farming
☐ toxic pollutants	☐ nutrient emrichment

38.5 subtotal this page

Site: Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:** June 1, 2020
Wetland: Wetland 022	**Rater:** BL, SM

38.5 subtotal first page

38.5 Subtotal | 0 Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

40.5 Subtotal | 2 Points

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

	Aquatic bed
2	Emergent
	Shrub
	Forest
	Mudflats
	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
	Moderately low (2)
	Low (1)
x	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
	Moderate 25-75% cover (-3)
x	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

1	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

40.5 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: modified 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 022

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing North

Wetland 022

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing East

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 022

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing South

Wetland 022

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing West

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 022

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200601-04**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 15.0 **% /** 86.2 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 38.82378 **Long.:** -82.160403 **Datum:** NAD83

Soil Map Unit Name: WuE2 - Westmoreland-Guernsey silt loams, 25 to 40 percent slopes, eroded **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point in for wetland 023 (w-bl-20200601-04). Wetland is within swale between hills and fully delineated. Groundwater seepage observed at time of survey. Wetland is potentially isolated, drains downslope to northeast offsite towards perennial stream s-bl-20200601-06, not directly connected and above stream terrace on hillside.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	10
Saturation Present? (includes capillary fringe)	**Yes** ◉ **No** ○	Depth (inches):	0

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

multiple primary hydrology indicators present. Primary source of hydrology is concentration of precipitation and surface runoff in geomorphic position. Drains to northeast downslope off-site via overland flow to perennial stream, potentially isolated.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200601-04

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Rubus idaeus	2	☐	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	2	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Phalaris arundinacea	30	☑	30.9%	FACW
2. Scirpus atrovirens	30	☑	30.9%	OBL
3. Carex frankii	15	☐	15.5%	OBL
4. Poa palustris	15	☐	15.5%	FACW
5. Impatiens pallida	5	☐	5.2%	FACW
6. Valerianella umbilicata	2	☐	2.1%	FAC
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	97	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	45	x 1 =	45
FACW species	50	x 2 =	100
FAC species	4	x 3 =	12
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	99 (A)		157 (B)

Prevalence Index = B/A = 1.586

Hydrophytic Vegetation Indicators:

- ☑ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are OBL and FACW

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200601-04

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]	Loc²	Texture	Remarks
0-3	10YR	4/2	100						Silt Loam	
3-10	10YR	4/1	90	10YR	4/3	10	C	PL	Silty Clay Loam	
10-16	5Y	5/2	60	5Y	5/6	20	C	M	Clay Loam	
				10YR	3/2	20	D	M		

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicators present as depleted matrix with low chroma and low value having redox concentrations in pore linings.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200601-05**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 10.0 **% /** 84.3 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 38.82363 **Long.:** -82.16026 **Datum:** NAD83

Soil Map Unit Name: WuE2 - Westmoreland-Guernsey silt loams, 25 to 40 percent slopes, eroded **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Point out to wetland 023 (w-bl-20200601-04), located about 25 feet east of boundary at equal elevation. Not a wetland point as hydric soil and hydrology criteria not met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	
Saturation Present? (includes capillary fringe)	**Yes** ○ **No** ◉	Depth (inches):	

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

No hydrology indicators present.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: upl-bl-20200601-05

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Rubus occidentalis	15	☑	55.6%	UPL
2. Juglans nigra	10	☑	37.0%	FACU
3. Fraxinus americana	2	☐	7.4%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	27	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Valerianella umbilicata	40	☑	39.2%	FAC
2. Dichanthelium clandestinum	30	☑	29.4%	FAC
3. Carex spicata	10	☐	9.8%	FAC
4. Vernonia gigantea	10	☐	9.8%	FAC
5. Lamium purpureum	5	☐	4.9%	UPL
6. Solidago altissima	5	☐	4.9%	FACU
7. Verbesina alternifolia	2	☐	2.0%	FAC
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	102	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	92	x 3 =	276
FACU species	17	x 4 =	68
UPL species	20	x 5 =	100
Column Totals:	129 (A)		444 (B)

Prevalence Index = B/A = 3.442

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ○ **No** ◉

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

No hydrophytic vegetation indicators present.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200601-05

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]	Loc²	Texture	Remarks
0-10	10YR 3/3	100					Silt Loam	
10-14	10YR 4/4	80	10YR 4/2	20	D	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

No hydric soil indicators present.

ORAM v. 5.0 Field Form Quantitative Rating

Site: Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:** June 1, 2020
Wetland: w-bl-20200601-04	**Rater:** BL, SM

0 Subtotal | 0 Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

12 Subtotal | 12 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

- [x] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

31 Subtotal | 19 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [x] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

- [x] None or none apparent (12)
- [ ] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] dike
- [ ] tile
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other- list

40 Subtotal | 9 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

- [x] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select one.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient emrichment

40 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site:	Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:**	June 1, 2020
Wetland:	Wetland 023	**Rater:**	BL, SM

40 subtotal first page

40 Subtotal | 0 Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

38 Subtotal | -2 Points

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

	Aquatic bed
1	Emergent
	Shrub
	Forest
	Mudflats
	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
	Moderately low (2)
	Low (1)
x	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
x	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

0	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

38 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: modified 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 023

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing North

Wetland 023

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing East

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 023

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing South

Wetland 023

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing West

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 023

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200601-03**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** concave **Slope:** 5.0 **% /** 78.7 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.82863 **Long.:** -82.16598 **Datum:** NAD83

Soil Map Unit Name: CsD - Coshocton silt loam, 15 to 25 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point in for wetland 024ab (w-bl-20200601-03ab). Wetland located in drainage swale and along edge of Pond 09 (p-bl-20200601-01). Wetland fully delineated, drains directly to intermittent stream s-bl-20200601-05 to south.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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): 12	**Wetland Hydrology Present?** **Yes** ◉ **No** ○

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

Remarks:

Multiple primary hydrology indicators present. Primary source of hydrology is concentration of precipitation and surface runoff in geomorphic position and abutting farm pond. Drains to south directly to intermittent stream.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200601-03

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Rubus occidentalis	10	☑	52.6%	UPL
2. Rosa multiflora	5	☑	26.3%	FACU
3. Ulmus americana	3	☐	15.8%	FACW
4. Fraxinus pennsylvanica	1	☐	5.3%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	19	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Scirpus atrovirens	30	☑	29.4%	OBL
2. Valerianella umbilicata	15	☑	14.7%	FAC
3. Dichanthelium clandestinum	15	☑	14.7%	FAC
4. Scirpus cyperinus	10	☐	9.8%	FACW
5. Elymus virginicus	10	☐	9.8%	FACW
6. Poa compressa	10	☐	9.8%	FACU
7. Euthamia graminifolia	5	☐	4.9%	FAC
8. Juncus tenuis	5	☐	4.9%	FAC
9. Onoclea sensibilis	2	☐	2.0%	FACW
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	102	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	30	x 1 =	30
FACW species	26	x 2 =	52
FAC species	40	x 3 =	120
FACU species	15	x 4 =	60
UPL species	10	x 5 =	50
Column Totals:	121 (A)		312 (B)

Prevalence Index = B/A = 2.579

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are OBL, FAC, FACU and UPL

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200601-03

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]	Loc²	Texture	Remarks
0-3	5Y	3/3	100						Silt Loam	
3-13	5Y	4/2	95	5Y	4/6	5	C	PL	Silt Loam	
13-17	5Y	4/1	98	5Y	4/4	2	C	PL	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicators present as depleted matrix with low chroma and low value having redox concentrations in pore linings.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200601-03**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 20.0 **% /** 87.1 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 38.82884 **Long.:** -82.166315 **Datum:** NAD83

Soil Map Unit Name: CsD - Coshocton silt loam, 15 to 25 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Point out to wetland 024ab (w-bl-20200601-03), about 50 feet northwest of wetland boundary. Not a wetland point as hydric soil and hydrology criteria not met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	
Saturation Present? (includes capillary fringe)	**Yes** ○	**No** ◉	Depth (inches):	**Wetland Hydrology Present?** **Yes** ○ **No** ◉

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

Remarks:

No hydrology indicators present.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: upl-bl-20200601-03

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Fraxinus americana	10	☑	76.9%	FACU
2. Juglans nigra	2	☐	15.4%	FACU
3. Sassafras albidum	1	☐	7.7%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	13		= Total Cover	
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	
Herb Stratum (Plot size: 5' r)				
1. Dichanthelium clandestinum	40	☑	39.2%	FAC
2. Valerianella umbilicata	30	☑	29.4%	FAC
3. Onoclea sensibilis	10	☐	9.8%	FACW
4. Alliaria petiolata	10	☐	9.8%	FACU
5. Festuca rubra	5	☐	4.9%	FACU
6. Elymus virginicus	5	☐	4.9%	FACW
7. Packera aurea	2	☐	2.0%	FACW
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	102		= Total Cover	
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	17	x 2 =	34
FAC species	70	x 3 =	210
FACU species	28	x 4 =	112
UPL species	0	x 5 =	0
Column Totals:	115 (A)		356 (B)

Prevalence Index = B/A = 3.096

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are FAC and FACU

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200601-03

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]	Loc²	Texture	Remarks
0-3	5Y 3/3	100					Silt Loam	
3-19	5Y 4/3	100					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Site: Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:** June 1, 2020
Wetland: Wetland 024	**Rater:** BL, SM

0 Subtotal | 0 Points

Metric 1. Wetland Area (size). (max 6 pts)

w-bl-20200601-03

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

12 Subtotal | 12 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

x	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

31 Subtotal | 19 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
x	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
x	Part of wetland/upland (e.g. forest), complex (1)
x	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
x	0.4 to 0.7m (15.7 to 27.6in) (2)
	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

x	Semi- to permanently inundated/saturated (4)
	Regularly inundated/saturated (3)
	Seasonally inundated (2)
	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

	None or none apparent (12)
x	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☑ dike	☑ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☐ dredging
☐ stormwater input	☐ other- list

42 Subtotal | 11 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
x	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
x	Good (5)
	Moderately good (4)
	Fair (3)
	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☑ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☐ selective cutting	☐ dredging
☐ woody debris removal	☐ farming
☐ toxic pollutants	☐ nutrient emrichment

42 subtotal this page

Site: Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:** June 1, 2020
Wetland: Wetland 024	**Rater:** BL, SM

42 subtotal first page

42 (Subtotal) 0 (Points)

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

47 (Subtotal) 5 (Points)

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

	Aquatic bed
2	Emergent
	Shrub
	Forest
	Mudflats
	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
	Moderately low (2)
	Low (1)
x	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
x	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

1	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
1	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

47 **GRAND TOTAL (max 100 pts)** Provisional Wetland Category: Category 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 024a **Date:** June 1, 2020 **Description:** PEM wetland Category 2 Facing North	

Wetland 024a **Date:** June 1, 2020 **Description:** PEM wetland Category 2 Facing East	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 024a **Date:** June1, 2020 **Description:** PEM wetland Category 2 Facing South	

Wetland 024a **Date:** June 1, 2020 **Description:** PEM wetland Category 2 Facing West	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 024a

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200601-02**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 5.0 **% /** 78.7 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 38.82963 **Long.:** -82.167702 **Datum:** NAD83

Soil Map Unit Name: WuD2 - Westmoreland-Guernsey silt loams, 15 to 25 percent **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point in for wetland 025 (w-bl-20200601-02). Wetland within swale, drains southwest directly to s-bl-20200601-04. Wetland is fully delineated.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	11	**Wetland Hydrology Present?** **Yes** ◉ **No** ○
Saturation Present? (includes capillary fringe)	**Yes** ◉ **No** ○	Depth (inches):	7	

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

Remarks:

Two primary and one secondary hydrology indicators present. Primary source of hydrology is concentration of precipitation and surface runoff in geomorphic position. Drains to southwest directly to intermittent stream.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200601-02

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Ulmus americana	2	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	2	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Poa palustris	40	☑	44.0%	FACW
2. Persicaria sagittata	10	☑	11.0%	OBL
3. Euthamia graminifolia	10	☑	11.0%	FAC
4. Galium asprellum	10	☑	11.0%	OBL
5. Scirpus atrovirens	5	☐	5.5%	OBL
6. Rubus allegheniensis	5	☐	5.5%	FACU
7. Juncus effusus	5	☐	5.5%	FACW
8. Rumex crispus	3	☐	3.3%	FAC
9. Dichanthelium clandestinum	3	☐	3.3%	FAC
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	91	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	25	x 1 =	25
FACW species	47	x 2 =	94
FAC species	16	x 3 =	48
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	93 (A)		187 (B)

Prevalence Index = B/A = 2.011

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are OBL, FACW and FAC

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200601-02

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]	Loc²	Texture	Remarks
0-3	10YR	4/3	100						Silt Loam	
3-12	5Y	5/2	80	10YR	4/6	20	C	M	Silty Clay Loam	
12-17	5Y	5/2	60	5Y	5/8	30	C	M	Silty Clay Loam	
				10YR	5/1	10	D	M		

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicators present as depleted matrix with low chroma and high value.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200601-02**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 10.0 **% /** 84.3 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.829605 **Long.:** -82.1677 **Datum:** NAD83

Soil Map Unit Name: WuD2 - Westmoreland-Guernsey silt loams, 15 to 25 percent **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Point out to wetland 025 (w-bl-20200601-02), about 5 feet east of boundary. Not a wetland point as hydric soil and hydrology criteria not met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):		**Wetland Hydrology Present?** **Yes** ○ **No** ◉
Saturation Present? (includes capillary fringe)	**Yes** ○ **No** ◉	Depth (inches):		

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

Remarks:

No hydrology indicators present.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: upl-bl-20200601-02

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Elaeagnus umbellata	15	☑	55.6%	UPL
2. Rubus occidentalis	10	☑	37.0%	UPL
3. Ulmus americana	2	☐	7.4%	FACW
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	27		= Total Cover	
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	
Herb Stratum (Plot size: 5' r)				
1. Euthamia graminifolia	30	☑	32.6%	FAC
2. Boehmeria cylindrica	15	☑	16.3%	FACW
3. Galium asprellum	15	☑	16.3%	OBL
4. Solidago altissima	10	☐	10.9%	FACU
5. Verbesina alternifolia	10	☐	10.9%	FAC
6. Agrimonia parviflora	5	☐	5.4%	FACW
7. Packera aurea	5	☐	5.4%	FACW
8. Asclepias syriaca	2	☐	2.2%	FACU
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	92		= Total Cover	
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	15	x 1 =	15
FACW species	27	x 2 =	54
FAC species	40	x 3 =	120
FACU species	12	x 4 =	48
UPL species	25	x 5 =	125
Column Totals:	119 (A)		362 (B)

Prevalence Index = B/A = 3.042

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are OBL, FAC, FACW and UPL

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200601-02

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]	Loc²	Texture	Remarks
0-3	10YR 3/3	100					Silt Loam	
3-17	10YR 4/3	100					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

No hydric soil indicators present.

ORAM v. 5.0 Field Form Quantitative Rating

Site:	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:**	June 1, 2020
Wetland:	w-bl-20200601-02	**Rater:**	BL, SM

0 Subtotal | 0 Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

12 Subtotal | 12 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

x	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

29 Subtotal | 17 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
x	Part of wetland/upland (e.g. forest), complex (1)
x	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation. (select one or double check & average)

	Semi- to permanently inundated/saturated (4)
	Regularly inundated/saturated (3)
	Seasonally inundated (2)
x	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. (select one or double check & average)

x	None or none apparent (12)
	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☐ dike	☐ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☐ dredging
☐ stormwater input	☐ other- list

38 Subtotal | 9 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

x	None or none apparent (4)
	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
	Fair (3)
x	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☑ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☐ selective cutting	☐ dredging
☐ woody debris removal	☐ farming
☐ toxic pollutants	☐ nutrient emrichment

38 subtotal this page

Site: Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:** June 1, 2020
Wetland: Wetland 025	**Rater:** BL, SM

38 subtotal first page

38 (Subtotal) 0 (Points)

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

40 (Subtotal) 2 (Points)

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

	Aquatic bed
1	Emergent
	Shrub
	Forest
	Mudflats
	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
	Moderately low (2)
	Low (1)
x	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
x	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

0	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

40 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: modified 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 025	
Date: June 1, 2020 **Description:** PEM wetland Category 2 Facing North	

Wetland 025	
Date: June 1, 2020 **Description:** PEM wetland Category 2 Facing East	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 025 **Date:** June 1, 2020 **Description:** PEM wetland Category 2 Facing South	

Wetland 025 **Date:** June 1, 2020 **Description:** PEM wetland Category 2 Facing West	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 025	
Date: June 1, 2020	
Description: PEM wetland Category 2 Soil Pit	

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200601-01**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 10.0 **% /** 84.3 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.830149 **Long.:** -82.168645 **Datum:** NAD83

Soil Map Unit Name: WuD2 - Westmoreland-Guernsey silt loams, 15 to 25 percent **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point in for wetland 026 (w-bl-20200601-01). Wetland is a drainage swale, drains to southwest directly to s-bl-20200601-03. Wetland is fully delineated.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	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:

Multiple primary hydrology indicators present. Primary source of hydrology is concentration of precipitation and surface runoff in geomorphic position. Drains to southwest directly to intermittent stream.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200601-01

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Salix X fragilis	5	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	5	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Carex lupulina	30	☑	31.3%	OBL
2. Scirpus atrovirens	15	☑	15.6%	OBL
3. Poa palustris	15	☑	15.6%	FACW
4. Eupatorium perfoliatum	10	☐	10.4%	FACW
5. Euthamia graminifolia	10	☐	10.4%	FAC
6. Juncus effusus	5	☐	5.2%	FACW
7. Mimulus ringens	5	☐	5.2%	OBL
8. Onoclea sensibilis	3	☐	3.1%	FACW
9. Rumex verticillatus	3	☐	3.1%	OBL
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	96	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	53	x 1 =	53
FACW species	33	x 2 =	66
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	101 (A)		164 (B)

Prevalence Index = B/A = 1.624

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are OBL, FACW and FAC

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200601-01

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]	Loc²	Texture	Remarks
0-2	10YR	4/2	100						Silt Loam	
2-11	10Y	4/1	95	10YR	3/4	5	C	PL	Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

Hydric soil indicators present as gleyed matrix with redox concentrations in pore linings

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Muskingum **Sampling Date:** 01-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200601-01**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 35 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** concave **Slope:** 20.0 **% /** 87.1 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.83016 **Long.:** -82.16868 **Datum:** NAD83

Soil Map Unit Name: WuD2 - Westmoreland-Guernsey silt loams, 15 to 25 percent **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Point out to wetland 026 (w-bl-20200601-01), located about 10 feet west of wetland boundary. Not a wetland point as hydric soil and hydrology criteria not met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):		
Saturation Present? (includes capillary fringe)	**Yes** ○	**No** ◉	Depth (inches):		**Wetland Hydrology Present?** **Yes** ○ **No** ◉

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

Remarks:

No hydrology indicators present.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: upl-bl-20200601-01

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Elaeagnus umbellata	20	☑	69.0%	UPL
2. Rubus occidentalis	5	☐	17.2%	UPL
3. Cornus florida	2	☐	6.9%	FACU
4. Juglans nigra	2	☐	6.9%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	29	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Solidago altissima	20	☑	26.7%	FACU
2. Euthamia graminifolia	15	☑	20.0%	FAC
3. Dichanthelium clandestinum	10	☑	13.3%	FAC
4. Vernonia gigantea	10	☑	13.3%	FAC
5. Elymus virginicus	10	☑	13.3%	FACW
6. Agrimonia parviflora	5	☐	6.7%	FACW
7. Rubus idaeus	5	☐	6.7%	FAC
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	75	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:		
OBL species	0	x 1 =	0	
FACW species	15	x 2 =	30	
FAC species	40	x 3 =	120	
FACU species	24	x 4 =	96	
UPL species	25	x 5 =	125	
Column Totals:	104	(A)	371	(B)

Prevalence Index = B/A = 3.567

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present as dominance test > 50%, dominant species are FAC, FACW, FACU and UPL

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200601-01

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]	Loc²	Texture	Remarks
0-5	10YR	5/3	100						Silt Loam	
5-17	2.5Y	5/3	90	10YR	4/6	10	C	PL	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

No hydric soil indicators present.

Site: Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:** June 1, 2020
Wetland: Wetland 026	**Rater:** BL, SM

0 Subtotal | 0 Points

Metric 1. Wetland Area (size). (max 6 pts)

w-bl-20200601-01

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

12 Subtotal | 12 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

x	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

29 Subtotal | 17 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
x	Part of wetland/upland (e.g. forest), complex (1)
x	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

	Semi- to permanently inundated/saturated (4)
	Regularly inundated/saturated (3)
	Seasonally inundated (2)
x	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

x	None or none apparent (12)
	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☐ dike	☐ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☐ dredging
☐ stormwater input	☐ other- list

39 Subtotal | 10 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

x	None or none apparent (4)
	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
x	Fair (3)
	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☑ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☐ selective cutting	☐ dredging
☐ woody debris removal	☐ farming
☐ toxic pollutants	☐ nutrient emrichment

39 subtotal this page

Site: Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:** June 1, 2020
Wetland: Wetland 026	**Rater:** BL, SM

39 subtotal first page

39 (Subtotal) 0 (Points)

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

42 (Subtotal) 3 (Points)

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

	Aquatic bed
2	Emergent
	Shrub
	Forest
	Mudflats
	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
	Moderately low (2)
	Low (1)
x	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
x	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

0	Vegetated hummocks/tussocks
0	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

42 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: modified 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 026

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing North

Wetland 026

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Facing East

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 026 **Date:** June 1, 2020 **Description:** PEM wetland Category 2 Facing South	

Wetland 026 **Date:** June 1, 2020 **Description:** PEM wetland Category 2 Facing West	

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 026

Date:

June 1, 2020

Description:

PEM wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Perry **Sampling Date:** 03-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200603-01a**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 34 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 10.0 **% /** 84.3 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.83403 **Long.:** -82.1759 **Datum:** NAD83

Soil Map Unit Name: GwC - Guernsey-Westmoreland silt loams, 8 to 15 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sampling point in for Wetland 027a, PEM component of larger PEM/PFO wetland complex. Wetland is a hillside seep area across ROW, partially located in residential yard. Wetland is partially disturbed due to residential mowing. Wetland is potentially isolated; drains to southeast and southwest.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	8
Saturation Present? (includes capillary fringe)	**Yes** ◉ **No** ○	Depth (inches):	4

Wetland Hydrology Present? **Yes** ◉ **No** ○

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

Remarks:

Multiple primary and secondary hydrology indicators present. Primary sources of hydrology are groundwater seepage and precipitation. Wetland drains to southeast and to southwest by upland drainage features towards intermittent stream 034, potentially isolated.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200603-01a

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' radius)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: 15' radius)				
1. Rubus occidentalis	5	☑	62.5%	UPL
2. Ulmus americana	3	☑	37.5%	FACW
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	8		= Total Cover	
Shrub Stratum (Plot size: 0)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	
Herb Stratum (Plot size: 5' radius)				
1. Phalaris arundinacea	50	☑	54.3%	FACW
2. Poa compressa	15	☐	16.3%	FACU
3. Scirpus atrovirens	10	☐	10.9%	OBL
4. Onoclea sensibilis	5	☐	5.4%	FACW
5. Dichanthelium clandestinum	5	☐	5.4%	FAC
6. Eleocharis obtusa	5	☐	5.4%	OBL
7. Asclepias syriaca	2	☐	2.2%	FACU
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	92		= Total Cover	
Woody Vine Stratum (Plot size: 15' radius)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	15	x 1 =	15
FACW species	58	x 2 =	116
FAC species	5	x 3 =	15
FACU species	17	x 4 =	68
UPL species	5	x 5 =	25
Column Totals:	100 (A)		239 (B)

Prevalence Index = B/A = 2.390

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present dominance test > 50%, dominant species are FACW and UPL

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200603-01a

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]	Loc²	Texture	Remarks
0-1	10YR	3/3	100						Silt Loam	
1-9	5Y	7/2	90	10YR	5/6	10	C	PL	Sandy Clay Loam	prominent redox concentrations
9-17	5Y	6/2	70	5Y	6/4	20	C	M	Sandy Clay Loam	redox concentrations in pore linings also
				5Y	4/1	10	RM	M		

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

hydric soil indicator present as depleted matrix with prominent redox concentrations in sandy soil

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Perry **Sampling Date:** 03-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200603-01b**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 34 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 10.0 **% /** 84.3 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.83409 **Long.:** -82.17623 **Datum:** NAD83

Soil Map Unit Name: GwC - Guernsey-Westmoreland silt loams, 8 to 15 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sampling point in for Wetland 027b, PFO component of larger PEM/PFO wetland complex. Wetland is a hillside seep area near edge of ROW. Wetland is potentially isolated; drains to southwest off-site, no obvious drainage feature present.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	10	**Wetland Hydrology Present?** **Yes** ◉ **No** ○
Saturation Present? (includes capillary fringe)	**Yes** ◉	**No** ○	Depth (inches):	4	

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

Remarks:

Multiple primary and secondary hydrology indicators present. Primary sources of hydrology are groundwater seepage and precipitation. Wetland drains to southwest off-site, no obvious drainage feature present, potentially isolated.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200603-01b

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' radius)				
1. Acer rubrum	60	☑	92.3%	FAC
2. Prunus serotina	5	☐	7.7%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	65	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' radius)				
1. Acer rubrum	30	☑	46.2%	FAC
2. Magnolia acuminata	15	☑	23.1%	FACU
3. Fraxinus pennsylvanica	10	☐	15.4%	FACW
4. Liriodendron tulipifera	10	☐	15.4%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	65	= Total Cover		
Shrub Stratum (Plot size: 0)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Woodwardia areolata	70	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	70	= Total Cover		
Woody Vine Stratum (Plot size: 15' radius)				
1. Smilax rotundifolia	5	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	5	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	80	x 2 =	160	
FAC species	95	x 3 =	285	
FACU species	30	x 4 =	120	
UPL species	0	x 5 =	0	
Column Totals:	205	(A)	565	(B)

Prevalence Index = B/A = 2.756

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present dominance test > 50%, dominant species are FACW, FAC and FACU

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200603-01b

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]	Loc²	Texture	Remarks
0-4	10YR	4/2	100						Silt Loam	
4-17	2.5Y	6/2	90	10YR	4/4	10	C	PL	Sandy Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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:

hydric soil indicator present as depleted matrix with prominent redox concentrations in sandy soil

Upland 027

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Perry **Sampling Date:** 03-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200603-01ab**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 34 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 15.0 **% /** 86.2 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.83411 **Long.:** -82.17589 **Datum:** NAD83

Soil Map Unit Name: GwC - Guernsey-Westmoreland silt loams, 8 to 15 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point (Upland 027) out to Wetland 027, located approximately 5 feet north of wetland boundary. Soils are problematic- prior strip mine area. Not a wetland point, does not meet hydric soil or hydrology criteria

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	
Saturation Present? (includes capillary fringe)	**Yes** ○ **No** ◉	Depth (inches):	

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

No hydrology indicators present

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Upland 027

Sampling Point: upl-bl-20200603-01ab

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' radius)				
1. Liriodendron tulipifera	30	✔	54.5%	FACU
2. Robinia pseudoacacia	20	✔	36.4%	FACU
3. Prunus serotina	5		9.1%	FACU
4.	0		0.0%	
5.	0		0.0%	
6.	0		0.0%	
7.	0		0.0%	
8.	0		0.0%	
	55	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' radius)				
1. Liriodendron tulipifera	15	✔	31.3%	FACU
2. Rubus occidentalis	15	✔	31.3%	UPL
3. Robinia pseudoacacia	10	✔	20.8%	FACU
4. Juglans nigra	5		10.4%	FACU
5. Ulmus americana	3		6.3%	FACW
6.	0		0.0%	
7.	0		0.0%	
8.	0		0.0%	
9.	0		0.0%	
10.	0		0.0%	
	48	= Total Cover		
Shrub Stratum (Plot size: 0)				
1.	0		0.0%	
2.	0		0.0%	
3.	0		0.0%	
4.	0		0.0%	
5.	0		0.0%	
6.	0		0.0%	
7.	0		0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Phalaris arundinacea	30	✔	39.5%	FACW
2. Woodwardia areolata	20	✔	26.3%	FACW
3. Impatiens pallida	20	✔	26.3%	FACW
4. Juncus effusus	3		3.9%	FACW
5. Acer rubrum	3		3.9%	FAC
6.	0		0.0%	
7.	0		0.0%	
8.	0		0.0%	
9.	0		0.0%	
10.	0		0.0%	
11.	0		0.0%	
12.	0		0.0%	
	76	= Total Cover		
Woody Vine Stratum (Plot size: 15' radius)				
1. Vitis riparia	2		100.0%	FACW
2.	0		0.0%	
3.	0		0.0%	
4.	0		0.0%	
5.	0		0.0%	
6.	0		0.0%	
	2	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 37.5% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	78	x 2 =	156	
FAC species	3	x 3 =	9	
FACU species	85	x 4 =	340	
UPL species	15	x 5 =	75	
Column Totals:	181	(A)	580	(B)

Prevalence Index = B/A = 3.204

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

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

No hydrophytic vegetation indicators present, dominant species are FACW, FACU and UPL

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200603-01ab

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]	Loc²	Texture	Remarks
0-2	10YR	4/2	100					Sandy Loam	
2-7	2.5Y	4/4	100					Sandy Clay Loam	
7-12	2.5Y	6/6	100					Sandy Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

No hydric soil indicators present

Site:	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:**	June 3, 2020
Wetland:	w-bl-20200603-01ab	**Rater:**	BL, SM

1 Subtotal | 1 Points

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
x	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
	<0.1 acres (0.04ha) (0 pts)

6 Subtotal | 5 Points

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
x	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
x	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

22 Subtotal | 16 Points

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
x	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
x	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation.
(select one or double check & average)

	Semi- to permanently inundated/saturated (4)
x	Regularly inundated/saturated (3)
	Seasonally inundated (2)
	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.
(select one or double check & average)

	None or none apparent (12)
x	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☐ dike	☐ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☐ dredging
☐ stormwater input	☑ other- list

31 Subtotal | 9 Points

Metric 4. Habitat Alteration and Development. (max 20 pts.)

Other - Strip Mining

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
x	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
x	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
	Good (5)
x	Moderately good (4)
	Fair (3)
	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☑ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☐ clearcutting	☐ sedimentation
☐ selective cutting	☐ dredging
☐ woody debris removal	☐ farming
☐ toxic pollutants	☐ nutrient emrichment

31 subtotal this page

Site: Crooksville-North Newark 138 kV Transmission Line Rebuil	**Date:** June 3, 2020
Wetland: w-bl-20200603-01ab	**Rater:** BL, SM

31 subtotal first page

31 Subtotal | 0 Points

Metric 5. Special Wetlands. (max 10 pts.)

Check all that apply and score as indicated

	Bog (10 pts)
	Fen (10 pts)
	Old Growth Forest (10 pts)
	Mature forested wetland (5 pts)
	Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
	Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
	Lake Plain Sand Prairies (Oak Openings) (10 pts)
	Relict Wet Prairies (10 pts)
	Known occurrence state/federal threatened or endangered species (10)
	Significant migatory songbird/waterfowl habitat or usage (10 pts)
	Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

32 Subtotal | 1 Points

Metric 6. Plant Communities, interspersion, microtopography. (max 20 pts.)

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

0	Aquatic bed
0	Emergent
0	Shrub
1	Forest
0	Mudflats
0	Open water
	Other (list)

6b. Horizontal (plan view) interspersion

Select only one

	High (5)
	Moderately high (4)
	Moderate (3)
	Moderately low (2)
x	Low (1)
	None (0)

6c. Coverage of invasive plants.

Refer to Table 1 ORAM long form for list.
Add or deduct points for coverage

	Extensive >75 % cover (-5)
x	Moderate 25-75% cover (-3)
	Sparse 5-25% cover (-1)
	Nearly Absent <5% cover (0)
	Absent (1)

6d. Microtopography

Score all present using 0 to 3 scale

1	Vegetated hummocks/tussocks
1	Coarse woody debris >15 cm (6")
0	Standing dead > 25 cm (10") dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1 ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
moderate	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

32 **GRAND TOTAL (max 100 pts)** Provisional Wetland Category: Modified Category 2

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 027a

Date:

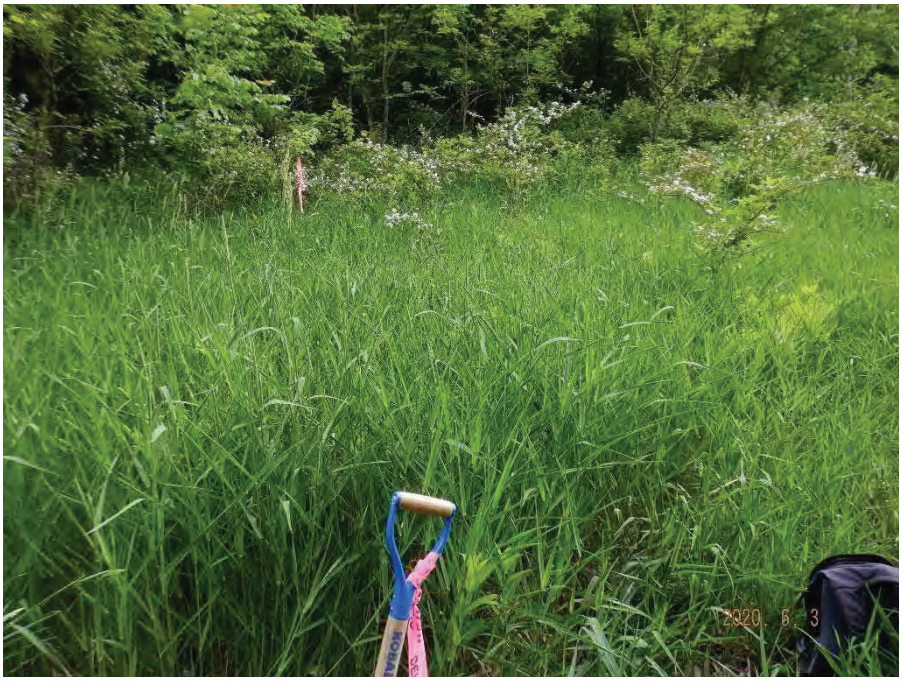
June 3, 2020

Description:

PEM wetland

Category 2

Facing North



Wetland 027a

Date:

June 3, 2020

Description:

PEM wetland

Category 2

Facing East

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 027a
Date: June 3, 2020
Description: PEM wetland Category 2 Facing South

Wetland 027a
Date: June 3, 2020
Description: PEM wetland Category 2 Facing West

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 027a

Date:

June 3, 2020

Description:

PEM wetland

Category 2

Soil Pit

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 027b

Date:

June 3, 2020

Description:

PFO wetland

Category 2

Facing North

Wetland 027b

Date:

June 3, 2020

Description:

PFO wetland

Category 2

Facing East

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 027b

Date:

June 3, 2020

Description:

PFO wetland

Category 2

Facing South

Wetland 027b

Date:

June 3, 2020

Description:

PFO wetland

Category 2

Facing West

AECOM Imagine it. Delivered.

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
AEP	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	60616110

Wetland 027b

Date:

June 3, 2020

Description:

PFO wetland

Category 2

Soil Pit

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Perry **Sampling Date:** 02-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **w-bl-20200602-11**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 34 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 3.0 **% /** 71.6 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.83471 **Long.:** -82.1771 **Datum:** NAD83

Soil Map Unit Name: GwC - Guernsey-Westmoreland silt loams, 8 to 15 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample point in for PSS wetland 028. Wetland is located in swale of old strip mine area. Spoil piles and coal fines present (naturally problematic soils). Groundwater seepage observed at northern boundary. Wetland extends to south towards wetland 029.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	**Yes** ○ **No** ◉	Depth (inches):		
Water Table Present?	**Yes** ◉ **No** ○	Depth (inches):	12	**Wetland Hydrology Present?** **Yes** ◉ **No** ○
Saturation Present? (includes capillary fringe)	**Yes** ◉ **No** ○	Depth (inches):	10	

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

Remarks:

Multiple primary and secondary hydrology indicators present. Primary source of hydrology groundwater seepage as observed and concentration of precipitation and surface runoff in swale.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: w-bl-20200602-11

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1. Acer saccharinum	5	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	5	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Acer saccharinum	15	☑	34.9%	FACW
2. Acer rubrum	10	☑	23.3%	FAC
3. Lindera benzoin	10	☑	23.3%	FAC
4. Ulmus rubra	5	☐	11.6%	FAC
5. Populus deltoides	3	☐	7.0%	FAC
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	43	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Woodwardia areolata	30	☑	75.0%	FACW
2. Parathelypteris noveboracensis	10	☑	25.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	40	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1. Toxicodendron radicans	5	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	5	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	50	x 2 =	100	
FAC species	43	x 3 =	129	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	93	(A)	229	(B)

Prevalence Index = B/A = 2.462

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

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

Hydrophytic vegetation indicator present dominance test > 50%, dominant species are FACW and FAC

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w-bl-20200602-11

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	4/2	100						Silt Loam	
1-16	10YR	5/1	90	10YR	4/4	10	C	PL	Sandy Clay Loam	distinct redox concentrations

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated 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 Muck 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:

Hydric soil indicator present as depleted matrix in sandy soils starting less than or equal to 6" depth with distinct redox concentrations as pore linings. Soils are naturally problematic due to past strip-mining activities.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Crooksville-North Newark 138 kV Transmission Line **City/County:** Perry **Sampling Date:** 02-Jun-20

Applicant/Owner: AEP **State:** OH **Sampling Point:** **upl-bl-20200602-09**

Investigator(s): BL, SKM **Section, Township, Range:** **S** 34 **T** 17N **R** 15W

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 10.0 **% /** 84.3 **°**

Subregion (LRR or MLRA): LRR N **Lat.:** 39.83504 **Long.:** -82.17744 **Datum:** NAD83

Soil Map Unit Name: GwD - Guernsey-Westmoreland silt loams, 15 to 25 percent slopes **NWI classification:** N/A

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

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** **Yes** ◉ **No** ○

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Point out (Upland 028) to wetland 028 and wetland 029, about 5' east of wetland 028 and 30' northwest of wetland 029. Not a wetland point, no wetland criteria met.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ 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):	
Saturation Present? (includes capillary fringe)	**Yes** ○ **No** ◉	Depth (inches):	

Wetland Hydrology Present? **Yes** ○ **No** ◉

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

Remarks:

No hydrology indicators present.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: upl-bl-20200602-09

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30' r)				
1. Liriodendron tulipifera	10	✔	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	10	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' r)				
1. Prunus serotina	15	✔	39.5%	FACU
2. Acer rubrum	10	✔	26.3%	FAC
3. Ulmus rubra	5	☐	13.2%	FAC
4. Rosa multiflora	5	☐	13.2%	FACU
5. Liquidambar styraciflua	3	☐	7.9%	FAC
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	38	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' r)				
1. Polystichum acrostichoides	30	✔	48.4%	FACU
2. Equisetum hyemale	20	✔	32.3%	FACW
3. Onoclea sensibilis	5	☐	8.1%	FACW
4. Smilax rotundifolia	5	☐	8.1%	FAC
5. Panicum virgatum	2	☐	3.2%	FAC
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	62	= Total Cover		
Woody Vine Stratum (Plot size: 15' r)				
1. Smilax rotundifolia	3	☐	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	3	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	25	x 2 =	50	
FAC species	28	x 3 =	84	
FACU species	60	x 4 =	240	
UPL species	0	x 5 =	0	
Column Totals:	113	(A)	374	(B)

Prevalence Index = B/A = 3.310

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **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.**

Definition of Vegetation Strata:

Four Vegetation Strata:

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

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

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

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

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

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

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ○ **No** ◉

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

No hydrophytic vegetation indicators present, dominant species are FACW, FAC and FACU.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: upl-bl-20200602-09

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]	Loc²	Texture	Remarks
0-4	10YR 4/3	100					Sandy Loam	
4-16	10YR 6/6	100					Sandy Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

No hydric soil indicators present.

Wetland 028

Site:	Crooksville-North Newark 138 kV Transmission Line Rebuild Project	**Date:**	June 2, 2020
Wetland:	w-bl-20200602-11	**Rater:**	BL, SM

Subtotal	Points
1	1

Metric 1. Wetland Area (size). (max 6 pts)

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
x	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
	<0.1 acres (0.04ha) (0 pts)

Subtotal	Points
13	12

Metric 2. Upland buffers and surrounding land use. (max 14 pts)

2a. Calculate average buffer width (select one, do not double check)

x	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & average)

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
x	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Subtotal	Points
27	14

Metric 3. Hydrology. (max 30 pts)

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
x	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
x	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only 1.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation. (select one or double check & average)

	Semi- to permanently inundated/saturated (4)
	Regularly inundated/saturated (3)
	Seasonally inundated (2)
x	Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. (select one or double check & average)

	None or none apparent (12)
x	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

☐ ditch	☐ point source (nonstormwater)
☐ dike	☐ filling/grading
☐ tile	☐ road bed/RR track
☐ weir	☐ dredging
☐ stormwater input	☑ other- list

Other - Strip Mining

Subtotal	Points
35	8

Metric 4. Habitat Alteration and Development. (max 20 pts.)

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
x	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

4b. Habitat development. Select one.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
	Fair (3)
x	Poor to fair (2)
	Poor (1)

Check all disturbances observed

☐ mowing	☐ shrub/sapling removal
☐ grazing	☐ herbaceous/aquatic bed removal
☑ clearcutting	☐ sedimentation
☐ selective cutting	☐ dredging
☐ woody debris removal	☐ farming
☐ toxic pollutants	☐ nutrient emrichment

35 subtotal this page

Summary: Notice Letter of Notification for the Crooksville- North 138kV Transmission Line Rebuild Project Pages 465-793 Part 2 electronically filed by Hector Garcia-Santana on behalf of AEP Ohio Transmission Company, Inc.