

**TETLP OPEN PROJECT
STREAM SUMMARY**

Sta: 2614400

OPEN Facility: 30" 36" MP: Compressor Station

Observers: JG Date: 6/28/13

Town: Mt Pleasant County: Belmont

Crossing Name/ID: A13-177-51 Recent Rain Event (date/amount): 6/25-6/27 < 1.5"

Flow Characteristics

Bank Full Width (average): 3' Flow Conditions: Flowing Subsurface Moist Channel Dry

<u>Flow Type</u>	<u>Flow Velocity</u>	<u>Comments:</u>
<input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent	<input type="checkbox"/> Torrential <input checked="" type="checkbox"/> Mod/Slow	
<input type="checkbox"/> Interstitial <input type="checkbox"/> Ephemeral	<input type="checkbox"/> Fast <input type="checkbox"/> Eddies	

Max Pool Depth: > 40 cm/15.8 in < 40 cm/15.8 in Max Pool Depth: No pools

Max Run Depth: < 1"

Riffle and Pool Width: Same Wider Pool Wider Riffle NA

Channel and Bank Characteristics

<u>Channel Substrate %:</u>	<u>Origin</u>	<u>Quality</u>	<u>Bank Height</u>
BLDR Slab	<input type="checkbox"/> Limestone	<i>Silted Stream Channel</i>	1.5 ft
Boulder	<input type="checkbox"/> Tills	<input type="checkbox"/> High	Bank Erosion
5 Bedrock x	<input type="checkbox"/> Wetlands	<input checked="" type="checkbox"/> Moderate	L R
5 Cobble x	<input type="checkbox"/> Hardpan	<input type="checkbox"/> Normal	<input type="checkbox"/> None- Some
60 Gravel x	<input checked="" type="checkbox"/> Sandstone	<input type="checkbox"/> Free	<input checked="" type="checkbox"/> Moderate
15 Sand x	<input type="checkbox"/> Rip/Rap	Embeddedness	<input type="checkbox"/> High-Severe
15 Silt Mud x	<input type="checkbox"/> Lacustrine	<input type="checkbox"/> Extensive	
Clay Hardpan	<input type="checkbox"/> Shale	<input checked="" type="checkbox"/> Moderate	
Peat-Muck	<input type="checkbox"/> Coal Fines	<input type="checkbox"/> Normal	
Artificial		<input type="checkbox"/> None	
Woody/Leaf Debris			
Fine Detritus			

Embedded Riffle/Run: NA

Stream Cover

<u>Instream Cover</u> (presence 0-3 [ranges 0, 1-33%, 33-66%, 66-100%])	<u>Instream Total Cover</u>	<u>Canopy Cover</u>
<input type="checkbox"/> Undercut Bank	<input type="checkbox"/> Extensive 25-75%	<input type="checkbox"/> 90-100% Closed
<input type="checkbox"/> Overhanging Veg.	<input type="checkbox"/> High 25-75%	<input type="checkbox"/> 70-90%
<input type="checkbox"/> Shallows (slow moving)	<input type="checkbox"/> Mod. 5-25%	<input checked="" type="checkbox"/> 45-70%
<input type="checkbox"/> Rootmats	<input checked="" type="checkbox"/> Low <5%	<input checked="" type="checkbox"/> 10-45%
<input type="checkbox"/> Rootwads		<input type="checkbox"/> 0-10% Open

Stream Morphology and Riparian Zone

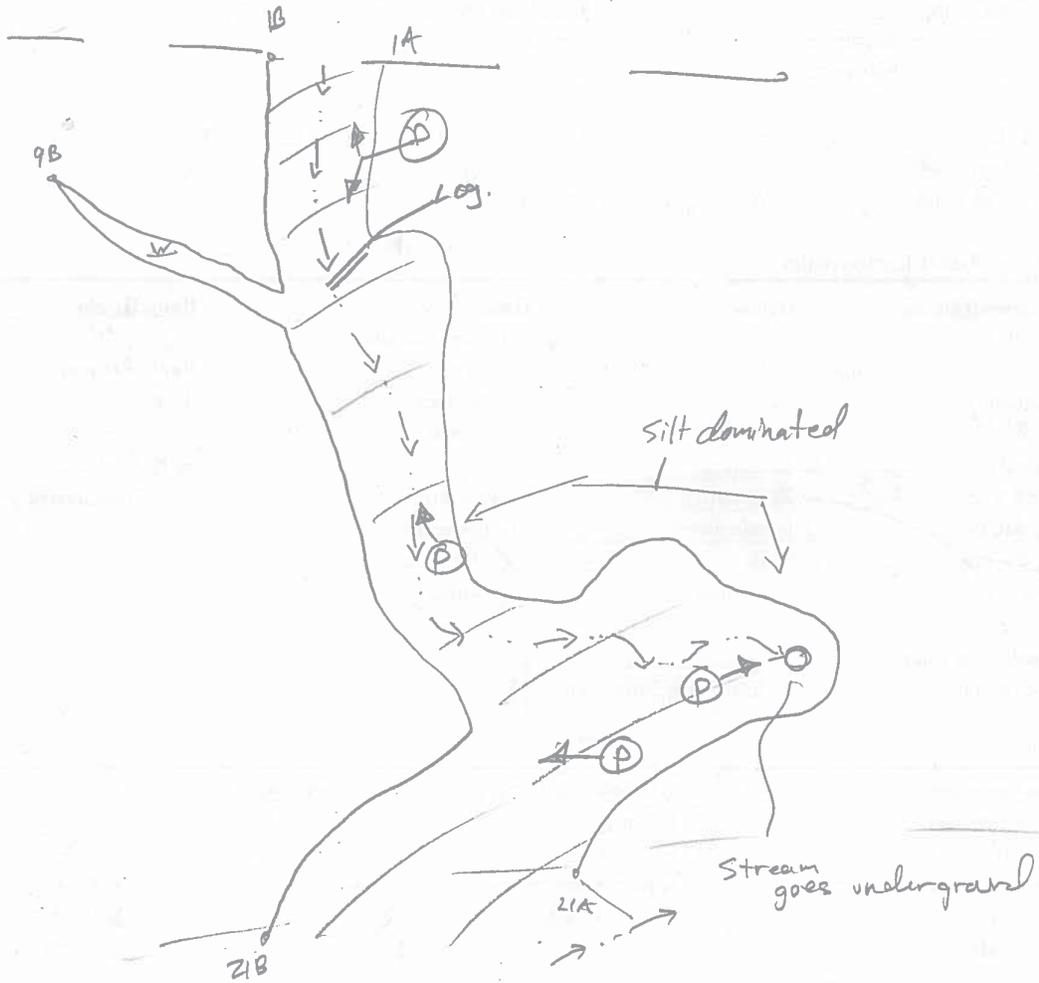
<u>Sinuosity</u>	<u>Gradient (estimate)</u>	<u>Riparian Zone (Right/Left)</u>	<u>Flood Plain Quality</u>
<input type="checkbox"/> High	<input type="checkbox"/> Flat (0.5/100 ft)	<input type="checkbox"/> Wide >50 m	<input checked="" type="checkbox"/> Forested
<input type="checkbox"/> Mod	<input type="checkbox"/> Mod Flat	<input checked="" type="checkbox"/> Mod 10-50 m	<input type="checkbox"/> Shrub or old field
<input checked="" type="checkbox"/> Low	<input checked="" type="checkbox"/> Mod (2/100 ft)	<input type="checkbox"/> Narrow 5-10 m	<input checked="" type="checkbox"/> Hay field
<input type="checkbox"/> None	<input checked="" type="checkbox"/> Mod Severe	<input type="checkbox"/> Very Narrow <5	<input type="checkbox"/> Active Pasture
# of Bends 0.5	<input type="checkbox"/> Severe (10/100 ft)		<input type="checkbox"/> Row crops
			<input type="checkbox"/> Development

Stream Ecology and Associated Wildlife Comments (i.e. marcos, salamanders, fish):

adjacent to active cow pasture.

STREAM SKETCH

STA: 2614+00
6/27/13



1A - 21A join S1-40.

Checklist:

- Stream ID# = A13-177-S1
- North arrow.
- Detailed sketch of stream (Riffle, Run, Pool).
- Natural and man-made features - roads, culverts, outcrops, structures, etc.
- Photo locations.
- Location of important wildlife sign.

**TETLP - OPEN PROJECT
WETLAND SUMMARY**

STA: 2614+00
A13-177-15/14

OPEN Facility: 30" 36" MP: Compressor Station

Observers: JG Date: 6/27/13

Town: Mt. Pleasant County: Belmont

Crossing Type(s) Wetland Waterbody Crossing Name: A13-177+51

NWI Class outside existing utility corridor: PEW NWI Class inside existing utility corridor: Other NWI Classes:

Representative Wetland Vegetation (by NWI Class):

Jewel weed 25. (*Impatiens capensis*)
Creeping Junc. 30 (*Lysimachia nummularia*)
Gly Striate 35
Aster Spices 5
straw berry 10 (*Fragaria virginiana*)
Spice bush 5. (*Lindera benzoin*)
Jap barberry 5. (*Berberis thunbergii*)

Invasive Plants: *Lythrum s.* _____ % *Phragmites a.* _____ % *Phalaris a.* _____ % *Ranunculus f.* _____ % *Rhamnus f.* _____ %

Invasive Aquatics: *Myriophyllum s.* _____ % *Najas m.* _____ % *Potamogeton c.* _____ % *Typha a./x.* _____ % None obs

Representative Wetland Hydrology

Permanently Flooded (Depth _____) Seasonally Flooded (Depth _____) Saturated (Depth to 0)

Water @ 8"

Other Indicators: Silt Deposition Water-Staining Water Marks Drift Lines Surface Scouring

Drainage Patterns Buttressed Trees Elevated Roots Oxidized Roots

HGM Class:

Riverine Depressional Slope Mineral Soil Flat Organic Soil Flat Estuarine Fringe Lacustrine Fringe

Subclass and description:

Representative Wetland Soils:

Mineral
 Organic (Histic or Histosol)

Depth	Horizon	Color	Redox Features	Texture
0-8	1M1R 4/2		75YR 4/6 15	
8-10+	2.5Y 5/1		10YR 4/6 25	Med
			10YR 2.5Y0	

General Wetland Description

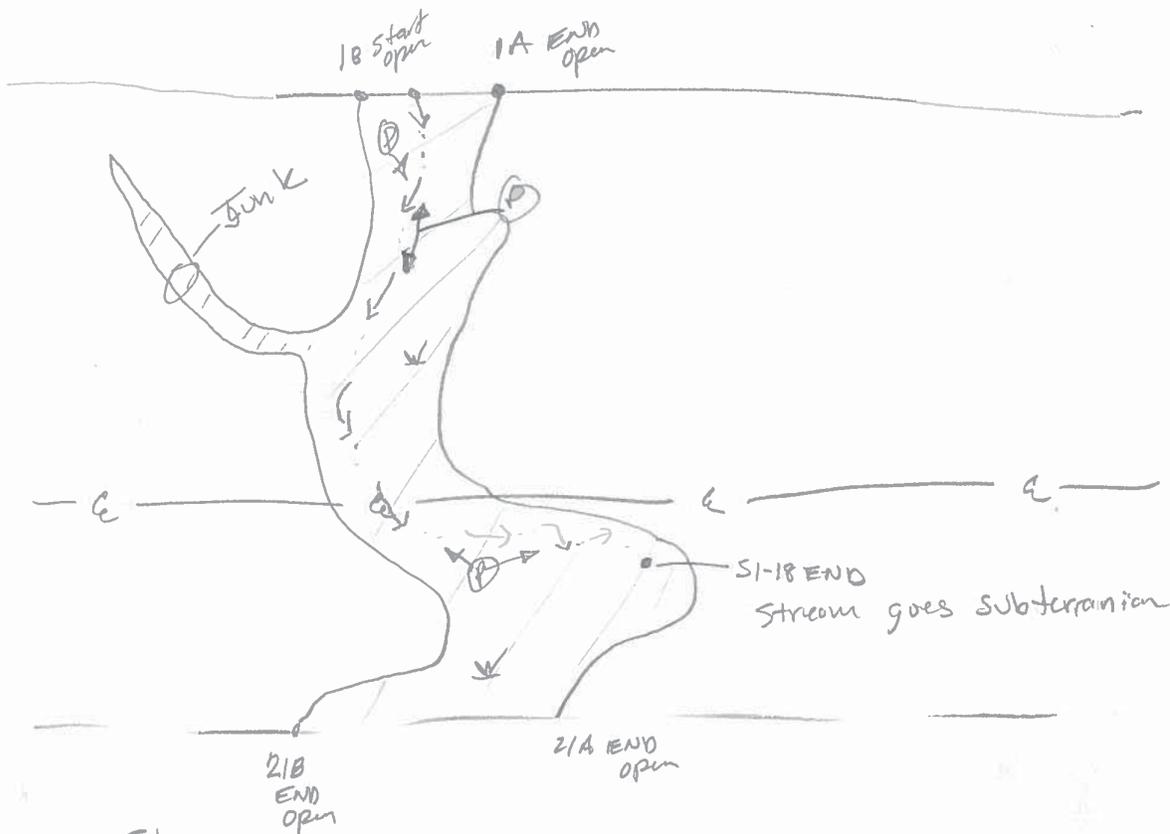
WETLAND SKETCH

STA: 2614+00
6/27/13

✓
1B-21B
1A-21A

SI
1-18 END

← N



SI
1-18 E

Wildlife Observations/Sign (e.g., tracks/trails, dams, dens, nests,):

- Sketch Checklist:
- Wetland ID# = A13-177
 - North arrow.
 - Detailed sketch of wetland boundary and flagging sequence.
 - Natural and man-made features – roads, culverts, outcrops, structures, etc.
 - Photo locations.
 - Location of important wildlife sign.

Field Office Map Review: Initials _____ Date _____

Flag

SIA: 2614408

A13-127-15/4

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: OPEN City/County: Mt. Pleasant Sampling Date: 6/2-1/3

Applicant/Owner: TETLP State: OH Sampling Point: U01

Investigator(s): IG Section, Township, Range: Belmont

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

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

Soil Map Unit Name: _____ NWI classification: PEM

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No	Is the Sampled Area within a Wetland? Yes <u>X</u> No
Hydric Soil Present? Yes <u>X</u> No	
Wetland Hydrology Present? Yes <u>X</u> No	
Remarks: <u>Wetland is located along an int. stream. Ground discharge from slope contributes to hydrology.</u>	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? Yes <u>X</u> No
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	
Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>2</u>	
Saturation Present? (includes capillary fringe) Yes <u>X</u> No _____ Depth (inches): <u>0</u>	

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

Remarks:

A13-177 15/14 wet

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

Sampling Point: _____

Tree Stratum (Plot size: <u>20</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NONE</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
4. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = FACW species _____ x 2 = FAC species _____ x 3 = FACU species _____ x 4 = UPL species _____ x 5 = Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Jan. bayberry (Baccharis thurbersii)</u>	<u>5</u>	<u>X</u>	<u>FACU</u>	
2. <u>Spice bush (Lindera benzoin)</u>	<u>5</u>	<u>X</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Money wort (Lysimachia nummularia)</u>	<u>30</u>	<u>X</u>	<u>FACW</u>	
2. <u>Strawberry (Fragaria virginiana)</u>	<u>10</u>	<u>1</u>		
3. <u>Aster spicatus</u>	<u>5</u>			
4. <u>Glyceria striata</u>	<u>35</u>	<u>X</u>	<u>OBL</u>	
5. <u>Impatiens nardiifolia</u>	<u>25</u>	<u>X</u>	<u>FACW</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>NONE</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
_____ = Total Cover				
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No				
Remarks: (Include photo numbers here or on a separate sheet.) <p style="text-align: center;">No trees located where wetland hydrology is present.</p>				

A13-177-15/14

SOIL

Sampling Point: Wet

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

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-8	10YR 4/6	85	7.5YR 4/4	15	C	M	Silt
8-10 ⁺	2.5Y 5/1	75	10YR 4/6	15	C	M	
			10YR 2.5/1	10	C	M	

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

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	
<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

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

Restrictive Layer (if observed):
 Type: None obs
 Depth (inches):

Hydric Soil Present? Yes No

Remarks:

A13-177-1514
 STA: 2614+00

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: OPEN City/County: Mt. Pleasant, Belmont Sampling Date: 6/27/13
 Applicant/Owner: TETLP State: OH Sampling Point: upland
 Investigator(s): JG Section, Township, Range: Mt Pleasant
 Landform (hillslope, terrace, etc.): Hills Local relief (concave, convex, none): depression Slope (%): 0%
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: UA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

A13-177-15/14

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

Sampling Point: UP

Tree Stratum (Plot size: <u>30'</u>)				Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1.	American elm. (<i>Ulmus americana</i>)		5	X	FACW		Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
2.							Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3.							Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)	
4.								
5.								
6.								
7.								
				<u>5</u> = Total Cover				
Sapling Stratum (Plot size: <u>15'</u>)								Prevalence Index worksheet:
1.	Spice bush NONE						Total % Cover of: _____ Multiply by:	
2.							OBL species _____ x 1 =	
3.							FACW species _____ x 2 =	
4.							FAC species _____ x 3 =	
5.							FACU species _____ x 4 =	
6.							UPL species _____ x 5 =	
7.							Column Totals: _____ (A) _____ (B)	
				<u>0</u> = Total Cover	Prevalence Index = B/A =			
Shrub Stratum (Plot size: <u>15'</u>)								Hydrophytic Vegetation Indicators:
1.	Spice bush (<i>Lindera benzoin</i>)		5				<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
2.	Rose multiflora		15	X	FACU		<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
3.							<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹	
4.							<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5.							<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
6.								
7.								
				<u>20</u> = Total Cover	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
Herb Stratum (Plot size: <u>5'</u>)								Definitions of Five Vegetation Strata:
1.	Poke weed (<i>Phytolacca americana</i>)		10				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).	
2.	Jewel weed (<i>Impatiens capensis</i>)		50	X	FACW		Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.	
3.	Wing stem (<i>Verbena alterniflora</i>)		30	X	FACW		Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.	
4.	Strawberry (<i>Fragaria virginiana</i>)		10				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.	
5.							Woody vine – All woody vines, regardless of height.	
6.								
7.								
				<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)								
1.								
2.	None							
3.								
4.								
5.								
							Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No	
Remarks: (Include photo numbers here or on a separate sheet.)								

A13-177

Sampling Point: 15/14

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 7/3	100					Sib	
8-16+	7.5YR 5/4	90	7.5YR 4/6	10			Sib	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 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)

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

Restrictive Layer (if observed):

Type: None obs.
Depth (inches):

Hydric Soil Present? Yes _____ No

Remarks:

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization	
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: <http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx>

Background Information

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Address:	6 Ashley Drive, Scarborough ME 04074
Phone Number:	207 314 5303
e-mail address:	kcaron@trcsolutions.com
Name of Wetland:	A13-177
Vegetation Communit(ies):	PEM
HGM Class(es):	depressional
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	see attached map
Lat/Long or UTM Coordinate	-80.82333 40.12264
USGS Quad Name	Lansing
County	BELMONT
Township	COLERAIN
Section and Subsection	OH35T0070N0030W013
Hydrologic Unit Code	50301060304
Site Visit	6/27/13
National Wetland Inventory Map	
Ohio Wetland Inventory Map	
Soil Survey	
Delineation report/map	

Name of Wetland: A13-177	
Wetland Size (acres, hectares):	0.05
<p>Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. see attached map and sketch</p>	
<p>Comments, Narrative Discussion, Justification of Category Changes:</p> <p>Depressional PEM wetland associated with intermittent stream (A13-177-S1). Groundwater discharge from slope also contributes to hydrology. Dominating vegetation within the wetland consists of <i>Glyceria striata</i>, <i>Impatiens capensis</i>, and <i>Lysmachia nummularia</i>. Soils are depleted and there is saturation at the surface of the wetland and the water table was observed at two inches below the surface of the wetland. A total of 0.36 acres of wetland were surveyed and 0.05 acres of wetland will be impacted.</p>	
Final score : 36	Category: modified 2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Y	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Y	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Y	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Y	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Y	X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Y	X

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	<input checked="" type="radio"/> NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	<input checked="" type="radio"/> NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	<input checked="" type="radio"/> NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	<input checked="" type="radio"/> NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	<input checked="" type="radio"/> NO Go to Question 8b

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: A13-177

Rater(s): Jon Gravel

Date: 6/27/13

0	0
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

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)
- <0.1 acres (0.04ha) (0 pts)

4	4
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. 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)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, 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)

14	18
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3c. Maximum water depth. Select only one and assign score.

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

3e. Modifications to natural hydrologic regime. Score one or double check and average.

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

3b. Connectivity. Score all that apply.

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

3d. Duration inundation/saturation. Score one or dbl check.

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

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

12	30
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

4b. Habitat development. Select only one and assign score.

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

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

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

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

30
subtotal this page

Site: A13-177	Rater(s): Jon Gravel	Date: 6/27/13
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30

subtotal first page

0	30
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

6	36
max 20 pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

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
- 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- 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)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (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
mod	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 <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (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

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End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input checked="" type="radio"/> NO	If yes, Category 1.
	Question 6. Bogs	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 7. Fens	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input checked="" type="radio"/> NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES <input checked="" type="radio"/> NO	If yes, Category 3
Question 11. Relict Wet Prairies	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	12	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	6	
	TOTAL SCORE	36	Category based on score breakpoints modified 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	<input checked="" type="radio"/> Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) :

14

SITE NAME/LOCATION TETLP's OPEN Project
 SITE NUMBER A13-177-S1 RIVER BASIN Ohio River East DRAINAGE AREA (mi²) 0.02
 LENGTH OF STREAM REACH (ft) 109 LAT. 40.12264 LONG. -80.82332 RIVER CODE _____ RIVER MILE _____
 DATE 12/18/13 SCORER Katie Caron COMMENTS surveyed 361' total, 109' within proposed ROW

NOTE: Complete All Items on This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
 MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	15
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	5	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	60	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	15	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 (A) **14** Two substrates equal 15%, points were averaged (B) **5**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **14** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS No pools, consistent run at < 2.54 cm MAXIMUM POOL DEPTH (centimeters): **0**

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) **0.9**

HHEI Metric Points

Substrate Max = 40
9

A + B

Pool Depth Max = 30
0

Bankfull Width Max=30
5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/> (Per Bank)	<input type="checkbox"/>	<input type="checkbox"/> (Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wide >10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/> Narrow <5m	<input type="checkbox"/>	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/> None	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Fenced Pasture
		<input type="checkbox"/>	<input type="checkbox"/> Conservation Tillage
		<input type="checkbox"/>	<input type="checkbox"/> Urban or Industrial
		<input type="checkbox"/>	<input type="checkbox"/> Open Pasture, Row Crop
		<input type="checkbox"/>	<input type="checkbox"/> Mining or Construction

COMMENTS adjacent to active cow pasture

FLOW REGIME (At Time of Evaluation) (Check *ONLY* one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - Yes No QHEI Score N/A (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

- WWH Name: Trib to Flat Run Distance from Evaluated Stream _____
- CWH Name: _____ Distance from Evaluated Stream _____
- EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Lansing, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
 County: BELMONT Township / City: Mt. Pleasant

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 6/27/13 Quantity: <0.5"

Photograph Information: See Photo Index

Elevated Turbidity? (Y/N): N Canopy (% open): 30-55

Were samples collected for water chemistry? (Y/N): N/A (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) N/A If not, please explain: N/A

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW 

Intermittent stream, flowing to the west adjacent to active cow pasture.

**OPEN 30" Mainline Wetland and Waterbody Photographs
Belmont County, Ohio**

**Colerain Township MP 51.49
A13-177, S1**

Photo 1

Photo 2

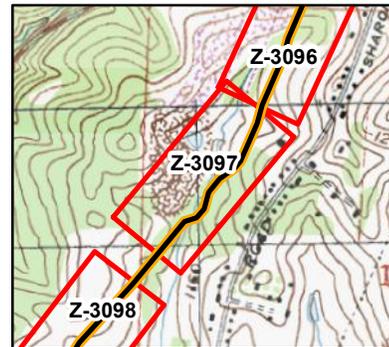
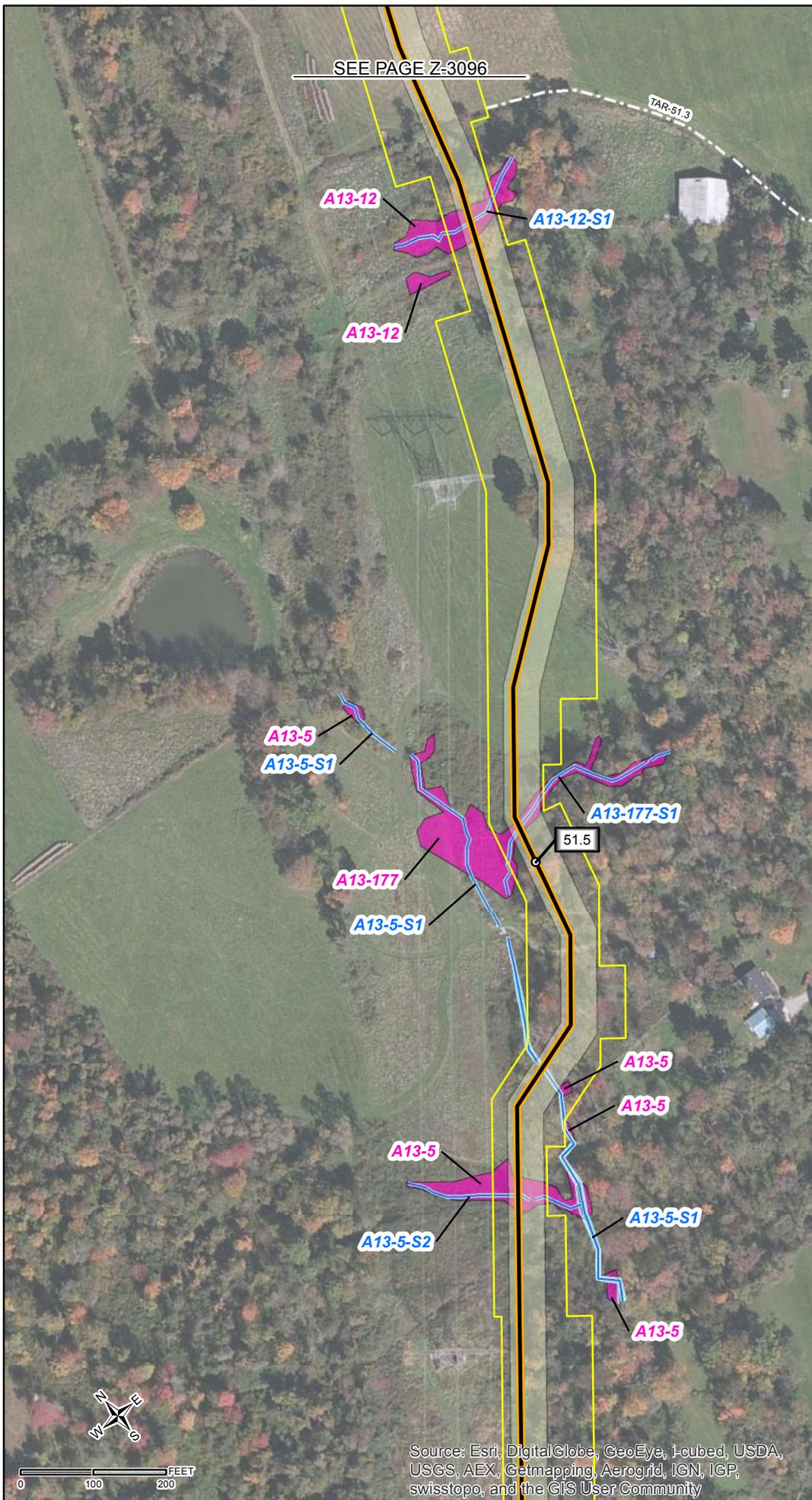


Photo 3

Photo 4



Photo 1: View of PEM wetland, facing NE
Photo 2: View of PEM wetland, facing south
Photo 3: Intermittent stream, looking upstream to the east
Photo 4: Intermittent stream, looking downstream to the west



LEGEND

- MILE POST
- PROPOSED PIPELINE
- PROPOSED ACCESS ROAD
- DELINEATED STREAM
- DELINEATED WATERBODY EDGE
- EXISTING ROAD CENTERLINE
- DELINEATED WATERBODY
- DELINEATED WETLAND
- PROPOSED PERMANENT EASEMENT
- PROPOSED CONSTRUCTION WORKSPACE
- MUNICIPALITY BOUNDARY

Data Sources: ESRI, Spectra, TRC, Hatch Mott MacDonald

Projection: NAD83, StatePlane
Ohio NorthFIPS 3401
US Survey Feet

Spectra Energy Partners
Texas Eastern Transmission, LP
5409 Weatherford Court, Houston, TX 77056-6518 713.827.5400

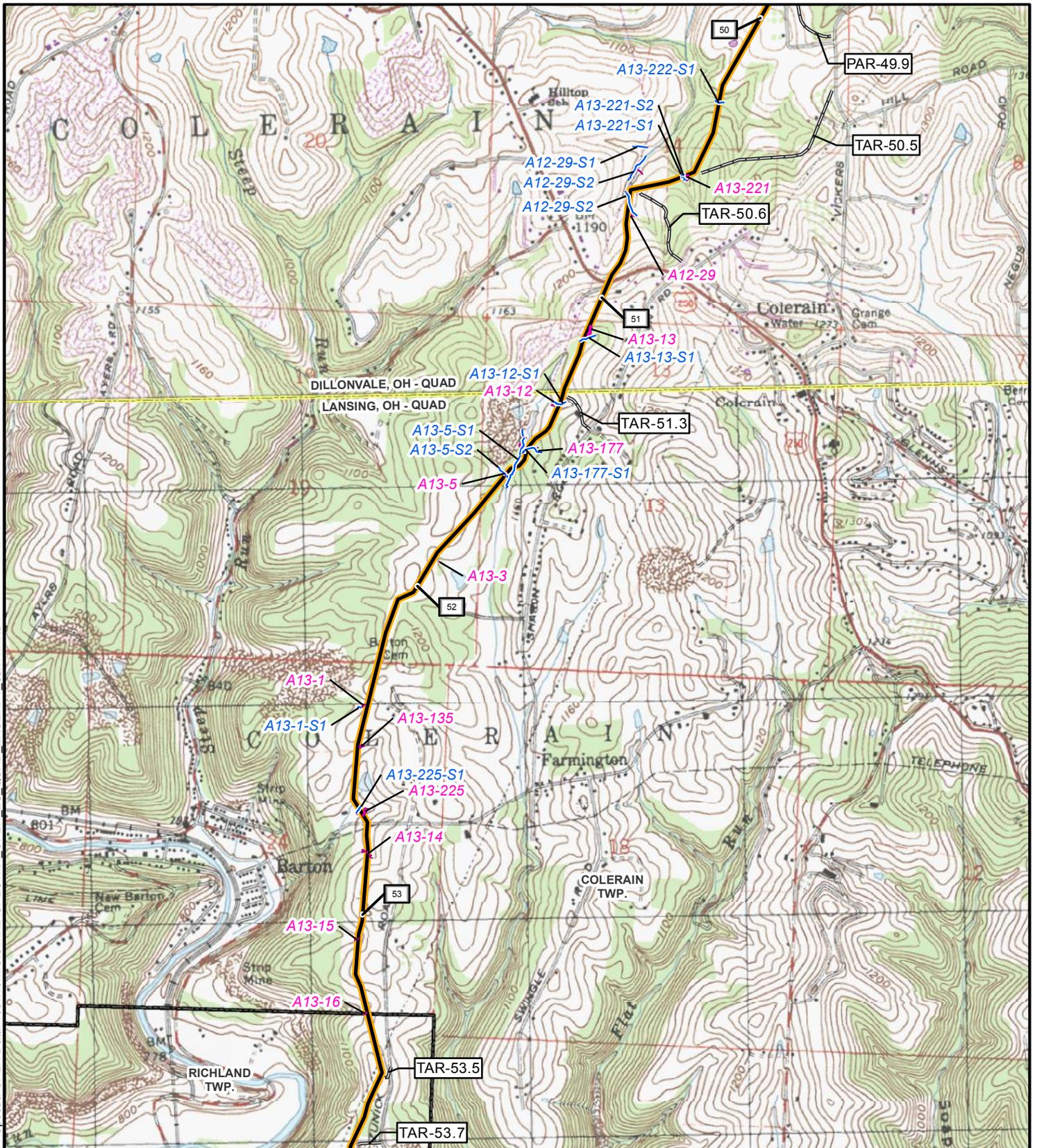
Spectra Natural Gas Pipeline
2015 OPEN Project
Proposed 30in. Line NO. 73

Natural Resource Maps
Map Z-3097

Hatch Mott MacDonald
Created: 02/19/2014

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

P:\Spectra\OPEN\data\Prod\Work\GIS\W\DXD\SPECTRA_OPEN_ES_QUAD_EXCERPT_85x11.mxd



1 MILE POST	DELINEATED WETLAND	PROPOSED M&R STATION	PROPOSED COMPRESSOR STATION
PROPOSED PIPELINE	DELINEATED WATERBODY	PROPOSED REGULATOR STATION	MUNICIPALITY BOUNDARY
PROPOSED ACCESS ROAD	PROPOSED STAGING AREA	PROPOSED TAP VALVE	COUNTY BOUNDARY
EXISTING TEXAS EASTERN PIPELINE	PROPOSED MAINLINE VALVE		USGS QUADRANGLE BOUNDARY
DELINEATED STREAM CENTERLINE			



TITLE: OPEN PROJECT
DELINEATED STREAMS & WETLANDS - USGS QUAD MAP

LOC.: BELMONT COUNTY, OHIO REV. 0

CKD. BY: HMMHOL ENG. DATE: 02/2014 W.O.

DRN. BY: HMMHOL SCALE: 1" = 2000' DWG. NO. Z-2016



Texas Eastern Transmission, LP
 5400 Westheimer Court, Houston, TX 77056-5310 713/627-5400

I.G.