

## Attachment D: Wetland and Stream Delineation Reports

- Wetland and Stream Delineation Report for Harrison Pipeline Project – August 2021
- Stream and Wetland Delineation Report – Harrison Power Pipeline – September 2020
- Wetland Delineation and Stream Assessment Report – Harrison Pipeline Company, LLC – November 2017



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23 August 2021  
File No. 0201358

Harrison Power Holdings LLC  
43034 Industrial Park Road  
Cadiz, Ohio 43907

Attention: Nicole Makela  
Director, Development

Subject: Wetland and Stream Delineation Report for Harrison Pipeline Project  
Harrison County, Ohio

Dear Ms. Makela:

This Wetland and Stream Delineation Report summarizes the results of field work performed by Haley & Aldrich, Inc. (Haley & Aldrich) to locate and identify wetlands and streams to support Harrison Power Holdings LLC's (Harrison Power's) proposed Harrison Power Gas Pipeline Project (the Project).

Harrison Power is proposing to install a less than 1-mile natural gas pipeline in association with the proposed Harrison Power Generating Facility. The Project is proposed in Harrison County, Ohio (see Figure 1). The area studied for the Project includes approximately 8.5 acres surrounding the proposed pipeline route and includes all temporary workspace required to construct the Project (herein referred to the Study Area).

## **Regulatory Authorities**

### **WATERS OF THE UNITED STATES**

As defined by the U.S. Army Corps of Engineers (USACE), Waters of the United States include lakes, ponds, streams (intermittent and perennial), and wetlands which are regulated under Sections 401 and 404 of the Clean Water Act. Federally jurisdictional wetlands are defined as "those that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

The USACE also regulates navigable waters under Section 10 of the Rivers and Harbor Act (33 U.S.C. 401 et seq.), which requires a permit from the USACE to construct any structure in or over any navigable water of the United States, as well as any proposed action that would alter or disturb (such as excavation/dredging or deposition of materials) these waters. If the proposed structure or activity affects the course, location, condition, or capacity of the navigable water, even if the proposed activity is outside the boundaries of the water body, a permit from the USACE is required.

## OHIO WETLANDS AND STREAMS

The Ohio Environmental Protection Agency (Ohio EPA) Division of Surface Water regulates wetlands pursuant to Section 401 of the federal Clean Water Act. Section 401 of the Clean Water Act requires that state agencies evaluate projects that will result in the discharge of dredged or fill material into Waters of the United States to determine whether the discharge will violate the state's water quality standards. Section 401 Water Quality Certifications are issued for the discharge of dredge and fill materials to Waters of the State.

"Waters of the State" are those waters within the jurisdiction of the Ohio EPA. They are generally defined as surface and underground water bodies, which extend through or exist wholly within the state. These include, but are not limited to, streams and both isolated and non-isolated wetlands. Private ponds, or any pond, reservoir, or facility built for reduction of pollutants prior to discharge is not included in this definition.

In addition to Waters of the United States, the Ohio EPA also regulates and issues permits for isolated wetland and ephemeral stream impacts under Sections 6111.21 and 6111.03(J)(1) of the Ohio Revised Code (ORC). The state relies on the USACE jurisdictional authority regarding wetland and stream determinations and delineations including whether a wetland is isolated or non-isolated and whether a stream is ephemeral.

## Methodology

Prior to initiating field investigations, Haley & Aldrich conducted a desktop review of publicly available data to evaluate the presence of mapped wetlands and streams within the Study Area. Data consulted included:

- United States Geological Survey (USGS) topographic quadrangle maps;
- United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps;
- Natural Resources Conservation Service (NRCS) Web Soil Survey;
- Federal Emergency Management Agency (FEMA) Flood Insurance maps;
- National Hydrography Dataset (NHD);
- Ohio Wetlands Inventory (OWI); and
- Recent aerial photography.

The field survey was performed in accordance with criteria set forth in the *Corps of Engineers Wetland Delineation Manual* ([Environmental Laboratory 1987] [Manual]) and the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* ([Version 2.0] [USACE, 2012] [Supplement]). Data was collected from one or more sample plots in each delineated wetland (depending on the size of the delineated area) and were recorded on USACE Wetland Determination Data forms. The boundaries of wetlands were located with a Trimble TDC150 Global Positioning System (GPS) unit with reported sub-meter accuracy.

Hydrology was evaluated based on indicators that are divided into two categories: primary and secondary. The 1987 Manual and 2012 Supplement define hydrology as present when at least one primary indicator or two secondary indicators are identified. One primary indicator is sufficient to evaluate whether hydrology is present; however, if primary indicators are absent, two or more secondary indicators are required to evaluate hydrology.

Hydrophytic vegetation was assessed by identifying plant species and their assigned wetland indicator rating of obligate, facultative wet, facultative, facultative upland, or upland, according to the *2018 National Wetland Plant List* (USACE, 2018). In both upland and wetland communities, vegetation was characterized using the areal dominance method, with a 30-foot-radius around the soil sample location for trees, a 15-foot-radius for saplings/shrubs, and a 5-foot-radius for herbaceous plants.

Hydric soil indicators were evaluated using soil characteristics, as defined in *Field Indicators of Hydric Soils in the United States (Version 8.0)* (NRCS, 2016). Evidence of hydric soil indicators were recorded based on the presence of color matrix, hue, and redoximorphic features, such as saturation, gleyed matrix, mottling, hydrogen sulfide odor, and/or organic/peat layers. Soil test pits were dug using a shovel to a depth of approximately 18 inches, or refusal due the presence of hard pan layer, rock, or hard fill material. Soil color was described using the Munsell Color book, and soil texture was determined using USDA hand-texture methods.

Wetlands were classified based on the Cowardin classification system (Cowardin *et al.*, 1979). This system includes classifications for Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), and Palustrine Forested (PFO) wetlands. Within PEM wetlands, emergent plants make up at least 30 percent aerial coverage and are the tallest life form. Within PSS wetlands, woody plants less than 20 feet tall are the dominant vegetation. PFO wetlands are dominated by woody plants at least 20 feet tall.

Wetlands were also evaluated using the *Ohio Rapid Assessment Method (ORAM) for Wetlands v. 5.0* (Mack, 2001). The ORAM process focuses on an assessment of delineated wetlands, as opposed to the boundary of wetlands. The ORAM assessment utilizes scoring forms to determine the ecological and functional value of a particular wetland. The ORAM was developed to provide a relatively fast and easy method for determining the appropriate category of a wetland under the Wetland Anti-Degradation Rule, Ohio Administrative Code (OAC) Rule 3745-1-54. These regulations specify three wetland categories: Category 1, Category 2, and Category 3, which correspond to low-, medium-, and high-quality wetlands, respectively.

Additional surface waters, including stream channels and drainage ways, found during field work were investigated, and ordinary high-water marks were located with GPS. Delineated streams were characterized on the Stream Inventory Data Form, as well as the Primary Headwater Habitat Evaluation Form (Ohio EPA, 2012) and Qualitative Habitat Evaluation Index and Use Assessment Field Sheet, as necessary. Recorded stream data included average water width, average ordinary high-water mark width, bankfull width, stream depth, bank height and slope, meander, gradient, channel substrate types, and adjacent vegetative community characteristics. To the extent practicable, these surface waters were investigated to evaluate drainage patterns and potential connections to other Waters of the United States.

Streams were classified as either perennial, intermittent, or ephemeral. A perennial stream has flowing water year-round during a typical year. They are generally identified as solid blue lines on USGS topographic maps. An intermittent stream has flowing water during certain times of the year when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Intermittent streams are generally identified as dashed blue lines on USGS topographic maps. An ephemeral stream has flowing water only during and for a short duration after precipitation events in a typical year. Ephemeral streams are not identified on USGS topographic maps. These desktop classifications were refined based on conditions observed during the field survey (e.g., flowing water unrelated to recent precipitation in an unmapped stream would be classified as intermittent).

## Site Setting

### PHYSIOGRAPHY AND SOILS

The Study Area is located in the Allegheny Plateau section of the larger Appalachian Plateau physiographic province. Topography with the Study Area consists of hilly terrain with areas of substantial relief. Elevation within the Study Area ranges from approximately 1,110 feet above mean sea level (amsl) in the southwestern portion of the Study Area to approximately 1,230 feet amsl along the eastern extent of the Study Area (USGS, 2021). A topographic map of the Study Area and surrounding region is provided as Figure 2.

Soil map units, drainage class, and hydric classification are listed in Table 1, in order of prevalence within the Study Area, and provided as Figure 2 (NRCS, 2021). As indicated in Figure 2, soils within the Study Area have been heavily disturbed as a result of extensive historic strip mining and subsequent mine reclamation activities. Soils mapped within the Study Area are well-drained silty clay loams that are not classified as hydric.

**Table 1. Study Area Soils**

Soil Map Unit Symbol	Soil Map Unit Name	Approximate Acres within Study Area	Percentage of Study Area	Drainage Class	Hydric Conditions <sup>1</sup>
Mwc3D	Morristown silty clay loam, 8 to 25 percent slopes, reclaimed	4.1	48.2	Well Drained	Not Hydric
Mwf6F	Morristown channery silty clay loam, 25 to 70 percent slopes, unreclaimed	2.3	27.1	Well Drained	Not Hydric
Mwc3B	Morristown silty clay loam, 0 to 8 percent slopes, reclaimed	2.1	24.7	Well Drained	Not Hydric

Note:

<sup>1</sup> Soils mapping source: USDA, Natural Resource Conservation Service (NRCS) web soil survey.

## HYDROLOGY

The Study Area extends through a watershed divide and is located in the Upper Ohio-Wheeling and Tuscarawas watersheds (HUC#s 05030106 and 0504001, respectively). The major streams in the Tuscarawas watershed include Wolf Creek, Chippewa Creek, Sandy Creek, Nimishillen Creek, McGuire Creek, Bear Hole Run, Willow Run, Sugar Creek, Stillwater Creek, Boggs Fork, Standingstone Fork, and the Tuscarawas River. The major streams in the Ohio-Wheeling watershed include Short Creek, Ohio River, Wheeling Creek, Dunkard Fork, Captina Creek, and West Virginia Fork Fish Creek.

The majority of surface hydrology within the Study Area is generated by precipitation and surface water sheet flow from adjacent areas at higher elevations. The Study Area has an average annual precipitation of 40.66 inches, as measured in nearby Cadiz, Ohio (NCDC, 2021).

There are two NWI wetlands mapped within the Study Area: one freshwater pond (NWI code: PUBGx) and one riverine wetland (NWI code: R4SBC). The OWI also indicates the potential presence of two wetlands within the Study Area. These areas are both classified as "Open Water." State and federal mapped wetlands and streams within the Study Area are included on Table 2 and are depicted on Figure 3. Field delineation was used to confirm whether such resources are present and to identify potential jurisdictional resources within the Study Area.

**Table 2. Federal and State Mapped Wetland and Streams**

Code	Wetland Type	Status
PUBGx	Freshwater Pond	No official state or federal status
R4SBC	Riverine	No official state or federal status
35 (two occurrences)	Open Water	No official state or federal status

## Results

Field investigations to delineate wetlands and streams within the Study Area were completed by a Haley & Aldrich wetland scientist on 26 May and 2 August 2021. A total of two wetlands and two streams were identified. The newly delineated features are summarized in Table 3 below and are depicted on Figure 4. Additional wetlands and streams in the vicinity of the Study Area have been delineated and these features are also shown on Figure 4.

**Table 3. Delineated Wetlands and Streams**

Wetland/ Stream ID	Wetland Community <sup>1</sup>	Stream Type <sup>2</sup>	Delineated Length/Area <sup>3</sup>	ORAM Category	HHEI Score	Presumed Jurisdiction <sup>4</sup>
MMA	PEM	NA	0.42 acre	II	NA	USACE
MMB	PEM	NA	0.10 acre	I	NA	USACE
MM1	NA	Ephemeral	207 linear feet	NA	18	Ohio EPA
MM2	NA	Ephemeral	16 linear feet	NA	34	Ohio EPA

Notes:

<sup>1</sup> Wetland classifications are based on the Cowardin classification system whereby: (P = Palustrine; EM = Emergent; SS = Shrub Scrub; FO = Forested).

<sup>2</sup> A perennial stream has flowing water year-round during a typical year. Perennial streams are generally identified as solid blue lines on USGS topographic maps. An intermittent stream has flowing water during certain times of the year when groundwater provides

water for stream flow. During dry periods, intermittent streams may not have flowing water. Intermittent streams are generally identified as dashed blue lines on USGS topographic maps. An ephemeral drain has flowing water only during and for a short duration after precipitation events in a typical year. Ephemeral drains are not identified on USGS topographic maps.

<sup>3</sup> Area of delineated wetlands, and length of delineated streams, presented on Figure 4 represent the entire wetland area identified during field investigations within the and may include small areas outside of the actual Study Area limits.

<sup>4</sup> If necessary, jurisdiction will be confirmed through agency consultation.

Representative photos of each delineated feature are included as Attachment A. Completed wetland determination data forms and stream inventory forms are included as Attachment B. Wetland types were classified according to the Cowardin classification (Cowardin et al., 1979).

## WETLAND DESCRIPTIONS

Wetland MMA was a 0.42-acre PEM wetland that includes an open water area south of the Study Area. The observed indicator of wetland hydrology was Oxidized Rhizospheres on Living Roots (C3). The dominant vegetation included fox sedge (*Carex vulpinoidea*), Frank's sedge (*Carex frankii*), and large barnyard grass (*Echinochloa crus-galli*). The observed indicator of hydric soil was Depleted Matrix (F3). This wetland appears to have downstream connections to other waters and Brushy Fork.

Wetland MMB was a 0.10-acre PEM wetland that exists on a slight slope and drainage depression. The observed indicators of wetland hydrology were Oxidized Rhizospheres on Living Roots (C3) and Geomorphic Position (D2). The dominant vegetation included dark green bulrush (*Scirpus atrovirens*) and large barnyard grass. This wetland also appears to be hydrologically connected to other waters and Brushy Fork.

## STREAM DESCRIPTIONS

Stream MM1 is an ephemeral stream whose channel passes through Wetland MMB. The stream channel was dry and approximately 2 feet wide at the time of observation. The channel substrate consisted of boulder, cobble, gravel, silt, and leaf pack. During periods of high water, Stream MM1 appears to flow towards Brushy Fork.

Stream MM2 is an ephemeral stream that flows out of Wetland MMB. The stream channel was dry and approximately 2 feet wide at the time of observation. The channel substrate consisted of boulder, cobble, gravel, silt, and leaf pack. During periods of high water, Stream MM2 appears to flow towards Brushy Fork.

## Conclusions

A total of two wetlands and two streams were delineated during the field investigations conducted by Haley & Aldrich in May and August 2021. Haley & Aldrich's analysis suggests Wetland MMA and Wetland MMB have hydrological connections to other Waters of the United States (Brushy Fork) and would likely be considered jurisdictional by the USACE. The delineated streams appear to be ephemeral and thus would likely only be considered jurisdictional by the Ohio EPA. Formal determinations of jurisdiction would be made through consultation with the USACE and Ohio EPA.

Harrison Power Holdings LLC

23 August 2021

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Thank you for this opportunity to provide this Wetland and Stream Delineation Report for Harrison Pipeline Project to Harrison Power Holdings LLC. If you have any questions or require additional information, please contact the undersigned.

Sincerely yours,  
HALEY & ALDRICH, INC.



Michael Martin  
Senior Scientist



Lynn Gresock  
Principal Consultant

Enclosures:

References

Figure 1 – Study Area Overview

Figure 2 – Topography and Soils

Figure 3 – Federal and State Mapped Aquatic Resources

Figure 4 – Delineated Wetlands and Streams

Attachment A – Photo Log

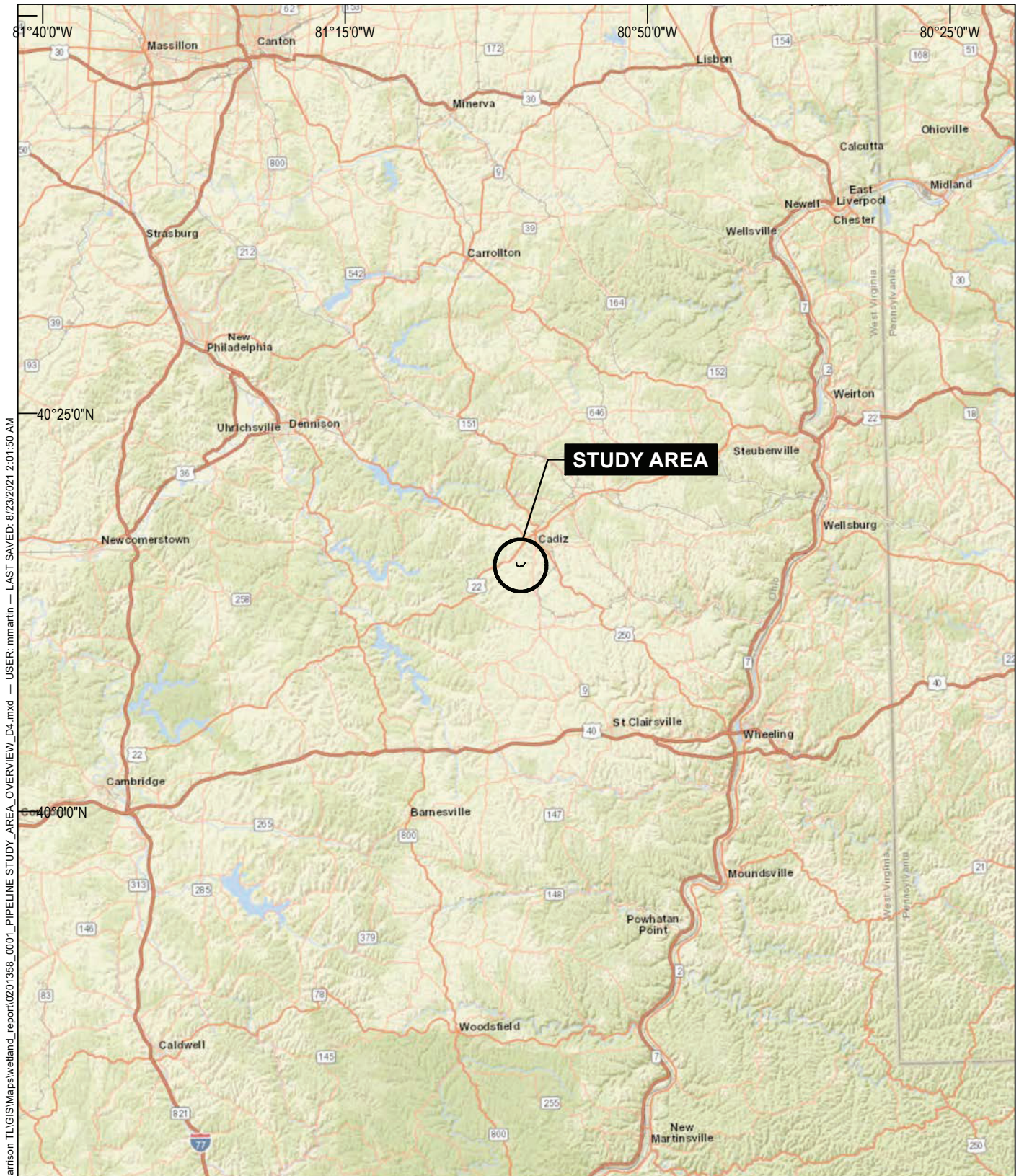
Attachment B – Routine Wetland Determination and Stream Inventory Data Forms

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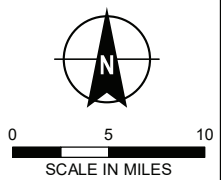
## References

1. Cowardin, L.M., et al. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C. 131 pp.
2. Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Environmental Laboratory, Vicksburg, MS, 92 pp.
3. Mack, J. J. 2001. *Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and Scoring Forms*. Ohio EPA Technical Report WET/2001-1. Ohio Environmental Protection Agency. Division of Surface Water, 401/Wetland Ecology Unit, Columbus, Ohio.
4. National Climatic Data Center (NCDC). 2021. *1981-2010 Climate Normals*. Available at: <https://www.ncdc.noaa.gov/cdo-web/datatools/normals> (Accessed 29 June 2021).
5. Natural Resources Conservation Service (NRCS). 2016. *Field Indicators of Hydric Soils in the United States (Version 8.0)*. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
6. NRCS. 2021. *Web Soil Survey*. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> (Accessed 27 April 2021).
7. Ohio Environmental Protection Agency (EPA). 2006. *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI)*. Ohio EPA Division of Surface Water, Columbus, Ohio. 26 pp.  
<http://www.epa.ohio.gov/portals/35/documents/QHEIManualJune2006.pdf>.
8. Ohio EPA. 2012. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (Version 3.0)*. Ohio EPA Division of Surface Water, Columbus, Ohio 117 pp.
9. U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*. U.S. Army Engineer Research and Development Center, Vicksburg, MS, 179 pp.
10. U.S. Geological Survey (USGS). 2021. *The National Map Viewer*. Available at: <https://apps.nationalmap.gov/viewer/> (Accessed 29 June 2021).
11. USACE. 2018. *National Wetland Plant List (Version 3.4)*. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. Available at: <http://wetland-plants.usace.army.mil/> (Accessed 27 April 2021).

## FIGURES



GIS FILE PATH: C:\Users\mmartin\Desktop\Harrison TLGIS\Mapswetland\_report\0201358\_0001\_PIPELINE STUDY AREA\_OVERVIEW\_D4.mxd — USER: mmartin — LAST SAVED: 8/23/2021 2:01:50 AM



MAP SOURCE: ESRI  
SITE COORDINATES: 40°14'60"N, 81°01'18"W



HARRISON PIPELINE PROJECT  
HARRISON COUNTY, OHIO

## STUDY AREA OVERVIEW

APPROXIMATE SCALE: 1 IN = 10 MI  
AUGUST 2021

FIGURE 1

GIS FILE PATH: C:\Users\mmartin\Desktop\Harrison TL\GIS\Mapswetland\_report\0201358\_0002\_PIPELINE TOPOGRAPHY AND SOILS\_D5.mxd — USER: mmartin — LAST SAVED: 8/23/2021 1:58:13 AM



**SOIL MAP UNITS**

- Mwc3B - Morristown silty clay loam, 0 to 8 percent slopes, reclaimed
- Mwc3D - Morristown silty clay loam, 8 to 25 percent slopes, reclaimed
- Mwf6F - Morristown channery silty clay loam, 25 to 70 percent slopes, unreclaimed

**LEGEND**

STUDY AREA

DISTURBED SURFACE (RECLAIMED STRIP MINE)

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. BASE MAP SOURCE: ESRI

SCALE IN FEET

**HALEY ALDRICH**

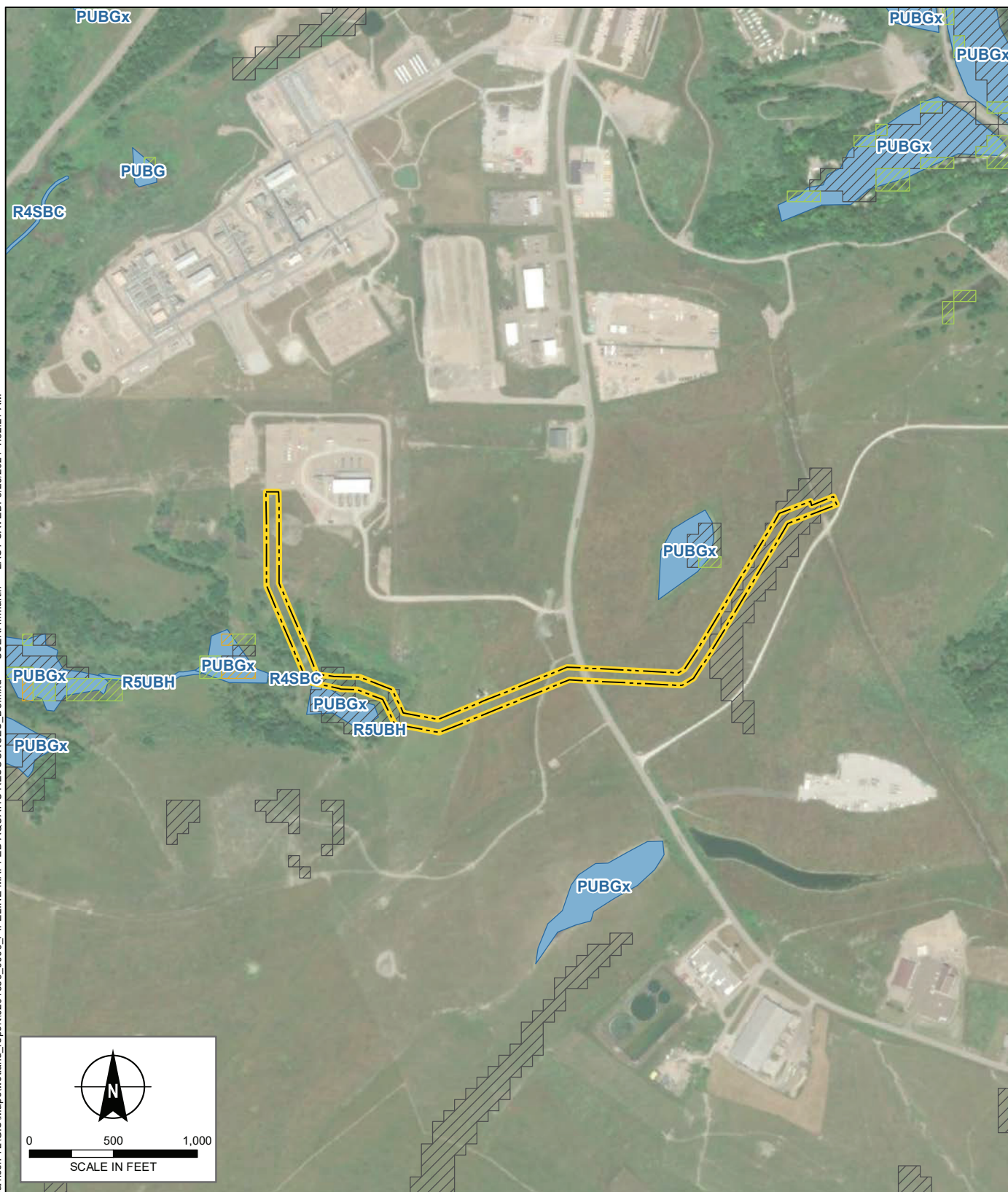
HARRISON PIPELINE PROJECT  
HARRISON COUNTY, OHIO

**TOPOGRAPHY AND SOILS**


SCALE: AS SHOWN  
AUGUST 2021

**FIGURE 2**


GIS FILE PATH: C:\Users\mmartin\Desktop\Harrison TLGIS\Mapswetland\_report\0201358\_0003\_PIPELINE MAPPED AQUATIC RESOURCES\_D5.mxd — USER: mmartin — LAST SAVED: 8/23/2021 1:32:27 AM



#### OHIO WETLAND INVENTORY

-  OPEN WATER
-  WOODS ON HYDRIC SOIL
-  SHALLOW MARSH
-  SHRUB/SCRUB WETLAND
-  WET MEADOW
-  FARMED WETLAND

 NWI WETLAND

 STUDY AREA

#### NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP SOURCE: ESRI

**HALEY  
ALDRICH**

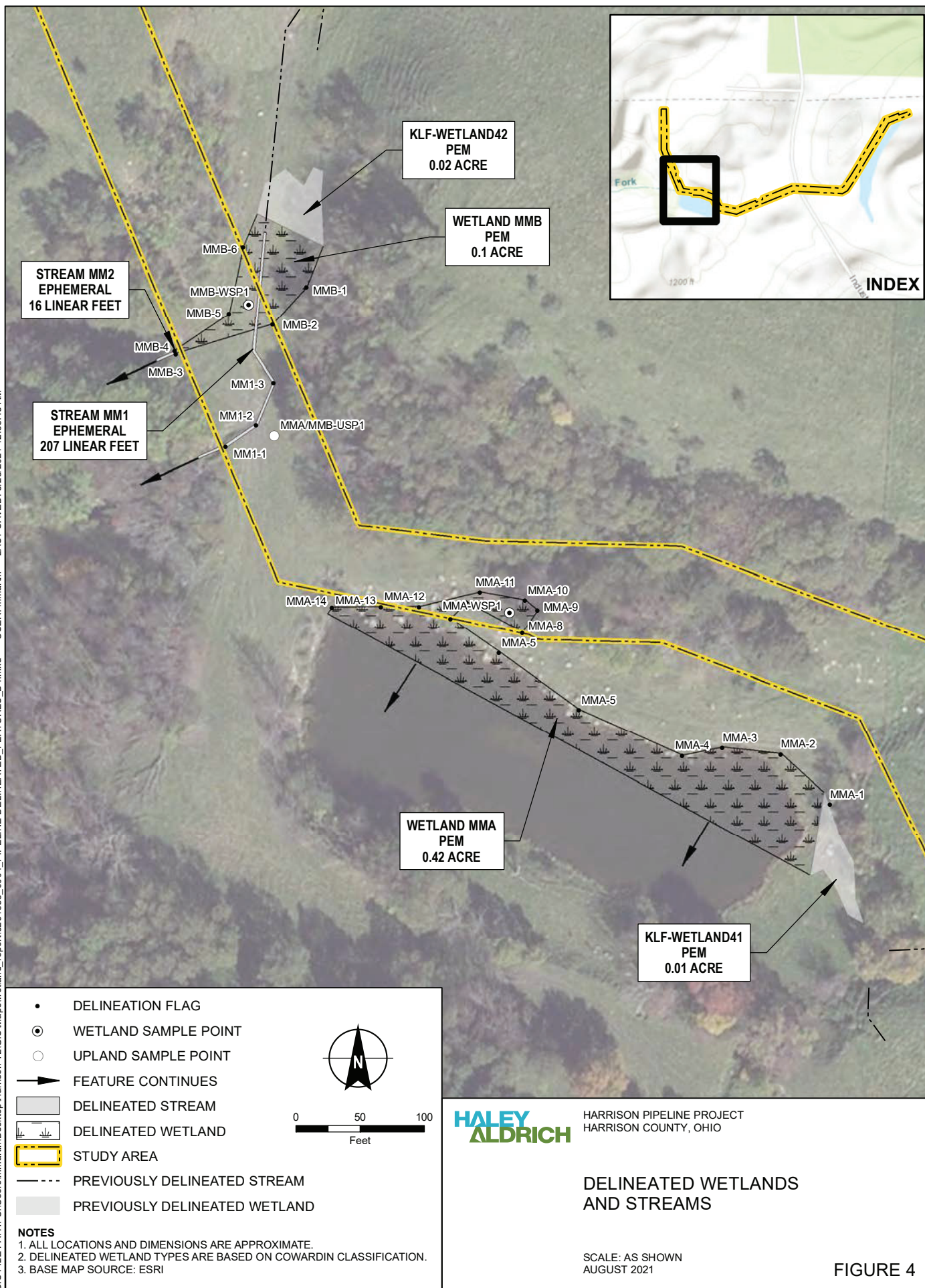
HARRISON PIPELINE PROJECT  
HARRISON COUNTY, OHIO

## FEDERAL AND STATE MAPPED AQUATIC RESOURCES

SCALE: AS SHOWN  
AUGUST 2021

FIGURE 3

GIS FILE PATH: C:\Users\mmartin\Desktop\Harrison TLGIS\Maps\wetland\_report\0201358\_0004\_PIPELINE\_DELINEATED\_FEATURES\_D4.mxd — USER: mmartin — LAST SAVED: 8/23/2021 12:58:43 AM



**ATTACHMENT A**

**Photo Log**



*Photo 1: View looking east within Wetland MMA (PEM) near flag MMA-7.*



*Photo 2: View looking west within Wetland MMA (PEM) near sample point MMA-WSP1.*



*Photo 3: View looking north within Wetland MMB (PEM) near sample point MMB-WSP1.*



*Photo 4: View looking south at Wetland MMB (PEM) near flag MMB-6.*



*Photo 5: View looking southwest at Stream MM1 (ephemeral) near flag MM1-1.*



*Photo 6: View looking northeast at Stream MM2 (ephemeral) near flag MMB-3.*

**ATTACHMENT B**

**Routine Wetland Determination and Stream Inventory Data Forms**

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Harrison Pipeline City/County: Harrison Sampling Date: 5-26-21  
 Applicant/Owner: Harrison Power State: OH Sampling Point: MMA-WSP1  
 Investigator(s): M. Martin Section, Township, Range: 009, 10N, 5W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR or MLRA): LRR-N Lat: 40.250254 Long: -81.825273 Datum: NAD83  
 Soil Map Unit Name: Morristown channery silty clay loam, 25 to 70% slopes NWI classification: PEM  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? 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 type="checkbox"/>	Hydic Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>Pasture area. Vegetation impacted by grazing.</u>			

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input checked="" 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)		<b>Secondary Indicators (minimum of two required)</b> <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)
<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

 Sampling Point: MMA-WSP1

Tree Stratum (Plot size: <u>30 ft rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Sapling Stratum (Plot size: <u>15 ft rad</u> )			
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Shrub Stratum (Plot size: <u>15 ft rad</u> )			
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Herb Stratum (Plot size: <u>5 ft rad</u> )			
1. Fox sedge ( <i>Carex vulpinoidea</i> )	<u>30</u>	<u>Y</u>	<u>OBL</u>
2. Frank's sedge ( <i>Carex frankii</i> )	<u>25</u>	<u>Y</u>	<u>OBL</u>
3. Large barnyard grass ( <i>Echinochloa crus-galli</i> )	<u>20</u>	<u>Y</u>	<u>FAC</u>
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
_____ = Total Cover			
50% of total cover: <u>75</u> 20% of total cover: <u>15</u>			
Woody Vine Stratum (Plot size: <u>30 ft rad</u> )			
1.			
2.			
3.			
4.			
5.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

Total % Cover of: \_\_\_\_\_ Multiply by:

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>
- ☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Five Vegetation Strata:**

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

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

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

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

**Woody vine** – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes ☒ No ☐

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

## SOIL

Sampling Point: MMA-LSP1

[illegible]

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Harrison Pipeline City/County: Harrison Sampling Date: 5-26-21  
 Applicant/Owner: Harrison Power State: OH Sampling Point: MMP-WP1  
 Investigator(s): M. Martin Section, Township, Range: 009, 10N, 5W  
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LRR or MLRA): LRR-N Lat: 40.250926 Long: -81.025982 Datum: NAD83  
 Soil Map Unit Name: Morristown clayey silty clay loam, 25-75% slopes, unreclaimed NWI classification: PEM  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? ☒ (If needed, explain any answers in Remarks.)

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

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

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (minimum of one is required; check all that apply)</b> <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 checked="" 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)		<b>Secondary Indicators (minimum of two required)</b> <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 checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

 Sampling Point: 44C-115

Tree Stratum (Plot size: <u>30ft rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

\_\_\_\_\_ = Total Cover

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_

Sapling Stratum (Plot size: <u>15ft rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

\_\_\_\_\_ = Total Cover

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_

Shrub Stratum (Plot size: <u>15ft rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			

\_\_\_\_\_ = Total Cover

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_

Herb Stratum (Plot size: <u>5ft rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Green bulrush (Scirpus atrovirens)</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>
2. <u>Large barnyard grass (Echinochloa crus-galli)</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3.			
4. <u>Unidentifiable grasses</u>	<u>10</u>	<u>N</u>	<u>NA</u>
5.			
6.			
7.			
8.			
9.			
10.			
11.			

\_\_\_\_\_ = Total Cover

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_

Woody Vine Stratum (Plot size: <u>30ft rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			

\_\_\_\_\_ = Total Cover

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_

**Dominance Test worksheet:**

 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)  
 Total Number of Dominant Species Across All Strata: 6 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = \_\_\_\_\_

**Hydrophytic Vegetation Indicators:**

- ☒ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☒ 3 - Prevalence Index is ≤3.0<sup>1</sup>
- ☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

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

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

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

**Woody vine** – All woody vines, regardless of height.

**Hydrophytic Vegetation Present?**

 Yes 1 No \_\_\_\_\_

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

## SOIL

Sampling Point: 1000-45

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

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- \_\_\_ Histosol (A1)
- \_\_\_ Histic Epipedon (A2)
- \_\_\_ Black Histic (A3)
- \_\_\_ Hydrogen Sulfide (A4)
- \_\_\_ Stratified Layers (A5)
- \_\_\_ 2 cm Muck (A10) (**LRR N**)
- \_\_\_ Depleted Below Dark Surface (A11)
- \_\_\_ Thick Dark Surface (A12)
- \_\_\_ Sandy Mucky Mineral (S1) (**LRR N, MLRA 147, 148**)
- \_\_\_ Sandy Gleyed Matrix (S4)
- \_\_\_ Sandy Redox (S5)
- \_\_\_ Stripped Matrix (S6)

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

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ 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)

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

## Restrictive Layer (if observed):

Type: stone

Depth (inches): 16

Hydric Soil Present? Yes ☒ No ☐

Remarks:

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Harrison Pipeline City/County: Harrison Sampling Date: 7/1/02  
 Applicant/Owner: Harrison Power State: OH Sampling Point: 009 10N, 5W  
 Investigator(s): M. Martin Section, Township, Range: 009 10N, 5W  
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%):         
 Subregion (LRR or MLRA): LRR-N Lat: 40.250645 Long: -81.025719 Datum: NAD83  
 Soil Map Unit Name: Morrisown channely silty clay loam, 25-70% slopes, unretained NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? 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 type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Area grazed by cattle.</u>	

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (minimum of one is required; check all that apply)</b> <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)		<b>Secondary Indicators (minimum of two required)</b> <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)
<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>      </u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>      </u> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>      </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: <u>No hydrology observed</u>		

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

Sampling Point: MMF P-0001

Tree Stratum (Plot size: <u>30 ft rad</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Sapling Stratum (Plot size: <u>15 ft rad</u> )			
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Shrub Stratum (Plot size: <u>15 ft rad</u> )			
1.			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Herb Stratum (Plot size: <u>5 ft rad</u> )			
1. <u>White clover (<i>Trifolium repens</i>)</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>
2. <u>Great plantain (<i>Plantago major</i>)</u>	<u>15</u>	<u>N</u>	<u>FACU</u>
3. <u>Orchard grass (<i>Dactylis glomerata</i>)</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>
4. <u>Unidentifiable grasses</u>	<u>10</u>	<u>N</u>	<u>NA</u>
5.			
6.			
7.			
8.			
9.			
10.			
11.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Woody Vine Stratum (Plot size: <u>30 ft rad</u> )			
1.			
2.			
3.			
4.			
5.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

## Dominance Test worksheet:

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

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

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

## Prevalence Index worksheet:

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

## Hydrophytic Vegetation Indicators:

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

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

## Definitions of Five Vegetation Strata:

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

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

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

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

**Woody vine** – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes \_\_\_\_\_ No ✓

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

## SOIL

Sampling Point: 2010-059

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

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators:

- \_\_\_ Histosol (A1)
- \_\_\_ Histic Epipedon (A2)
- \_\_\_ Black Histic (A3)
- \_\_\_ Hydrogen Sulfide (A4)
- \_\_\_ Stratified Layers (A5)
- \_\_\_ 2 cm Muck (A10) (LRR N)
- \_\_\_ Depleted Below Dark Surface (A11)
- \_\_\_ Thick Dark Surface (A12)
- \_\_\_ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- \_\_\_ Sandy Gleyed Matrix (S4)
- \_\_\_ Sandy Redox (S5)
- \_\_\_ Stripped Matrix (S6)

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

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ 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)

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

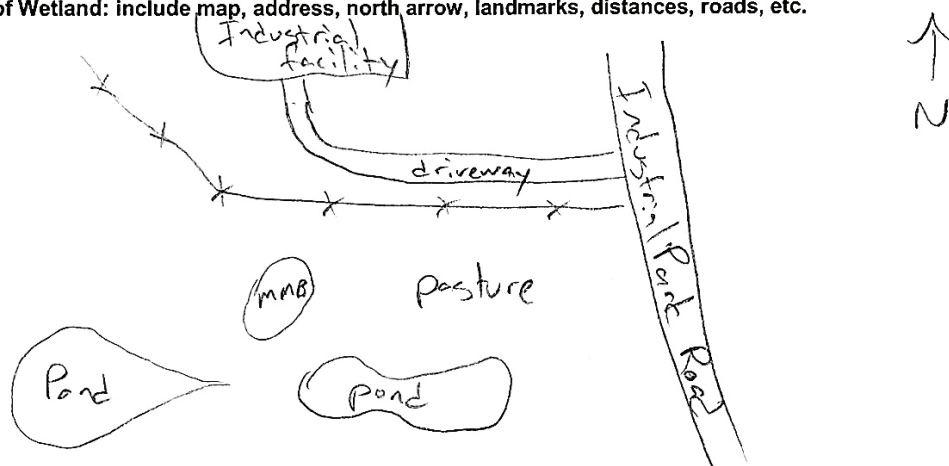
## Restrictive Layer (if observed):

Type: stone  
Depth (inches): 12

Hydric Soil Present? Yes ☐ No ☒

Remarks:

## Background Information

<b>Name:</b>	Michael Martin
<b>Date:</b>	5-26-21
<b>Affiliation:</b>	Haley & Aldrich
<b>Address:</b>	200 Town Center Drive, Suite 2, Rochester, NY 14623
<b>Phone Number:</b>	585-321-4265
<b>e-mail address:</b>	mmartin@haleyaldrich.com
<b>Name of Wetland:</b>	MMB
<b>Vegetation Community(ies):</b>	PEM
<b>HGM Class(es):</b>	Depression
<b>Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.</b>	
	
<b>Lat/Long or UTM Coordinate</b>	40.250926, -81.025982
<b>USGS Quad Name</b>	Flushing Jewett
<b>County</b>	Harrison
<b>Township</b>	Cadie
<b>Section and Subsection</b>	Cadie Township
<b>Hydrologic Unit Code</b>	050400011402
<b>Site Visit</b>	5-26-21
<b>National Wetland Inventory Map</b>	NA
<b>Ohio Wetland Inventory Map</b>	NA
<b>Soil Survey</b>	M&LF
<b>Delineation report/map</b>	Figure 4

Name of Wetland: MMB	
Wetland Size (acres, hectares): 0.1 acre	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
Comments, Narrative Discussion, Justification of Category Changes:	
<p>Located in valley bottom in an area of reclaimed strip mine, Currently used as pasture</p>	
Final score :	Category:
16	1

## 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
<b>Step 1</b>	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	/	
<b>Step 2</b>	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.	/	
<b>Step 3</b>	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.	/	
<b>Step 4</b>	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.	/	
<b>Step 5</b>	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	/	
<b>Step 6</b>	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.	/	

**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	<b>Critical Habitat.</b> 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	NO  Go to Question 2
2	<b>Threatened or Endangered Species.</b> 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	NO  Go to Question 3
3	<b>Documented High Quality Wetland.</b> 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	NO  Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> 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	NO  Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and <b>hydrologically isolated</b> 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	NO  Go to Question 6
6	<b>Bogs.</b> 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	NO  Go to Question 7
7	<b>Fens.</b> 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	NO  Go to Question 8a
8a	<b>"Old Growth Forest."</b> 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	NO  Go to Question 8b

8b	<b>Mature forested wetlands.</b> 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	<b>Lake Erie coastal and tributary wetlands.</b> 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	<b>Lake Plain Sand Prairies (Oak Openings)</b> 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	<b>Relict Wet Prairies.</b> 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 viridicarinatum</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.

<b>Site:</b> <u>MMB</u>	<b>Rater(s):</b> <u>M. Martin</u>	<b>Date:</b> <u>5-26-21</u>
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1	1
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)

1	2
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)

7	9
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

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input type="checkbox"/> road bed/RR track</li> <li><input checked="" type="checkbox"/> dredging</li> <li><input checked="" type="checkbox"/> other <u>former mine</u></li> </ul> |
|--|--|

5	14
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

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul> |
|--|--|

14
subtotal this page

<b>Site:</b> <u>MMB</u>	<b>Rater(s):</b> <u>M. Martin</u>	<b>Date:</b> <u>5-26-21</u>
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14

subtotal first page

0	14
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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)

2	16
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max 20 pts.      subtotal

## Metric 6. Plant communities, interspersions, microtopography.

### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other \_\_\_\_\_

### 6b. horizontal (plan view) Interspersions.

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.

- ☒ Vegetated hummocks/tussocks
- ☒ Coarse woody debris >15cm (6in)
- ☒ Standing dead >25cm (10in) dbh
- ☒ 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 <u>NO</u>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <u>NO</u>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <u>NO</u>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <u>NO</u>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <u>NO</u>	If yes, Category 1.
	Question 6. Bogs	YES <u>NO</u>	If yes, Category 3.
	Question 7. Fens	YES <u>NO</u>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <u>NO</u>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <u>NO</u>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <u>NO</u>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	<u>1</u>	
	Metric 2. Buffers and surrounding land use	<u>1</u>	
	Metric 3. Hydrology	<u>7</u>	
	Metric 4. Habitat	<u>5</u>	
	Metric 5. Special Wetland Communities	<u>0</u>	
	Metric 6. Plant communities, interspersion, microtopography	<u>2</u>	
	TOTAL SCORE	<u>16</u>	Category based on score breakpoints <u>1</u>

Complete Wetland Categorization Worksheet.

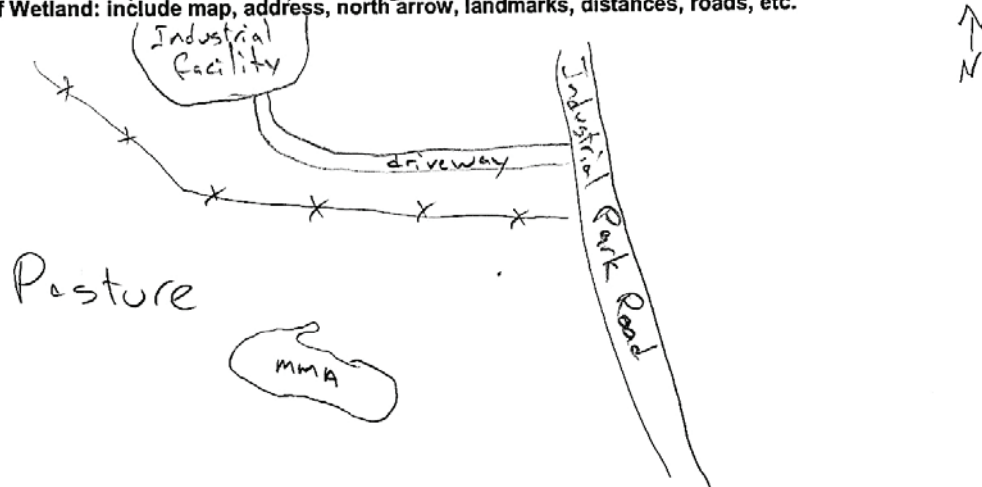
## Wetland Categorization Worksheet

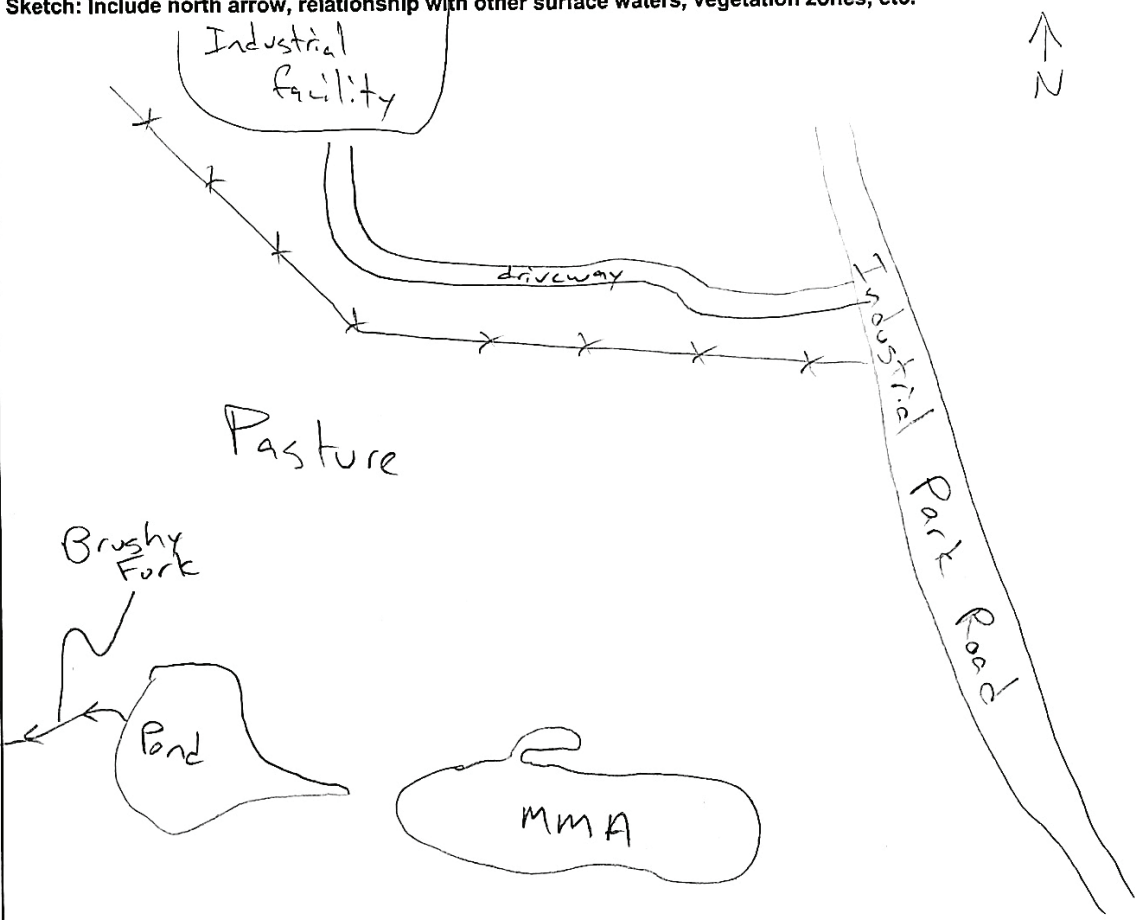
Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions:  Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES  Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold ( <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	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	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?	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	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	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.

Choose one
Category 1
Category 2
Category 3

**End of Ohio Rapid Assessment Method for Wetlands.**

## Background Information

<b>Name:</b>	Michael Martin		
<b>Date:</b>	5-26-21		
<b>Affiliation:</b>	Haley & Aldrich		
<b>Address:</b>	200 Town Center Drive, Suite 2, Rochester, NY 14623		
<b>Phone Number:</b>	585-321-4265		
<b>e-mail address:</b>	mmartin@haleyaldrich.com		
<b>Name of Wetland:</b>	MMA		
<b>Vegetation Community(ies):</b>	PEM		
<b>HGM Class(es):</b>	Depressional, Fringe		
<b>Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.</b>			
<b>Lat/Long or UTM Coordinate</b>	40.250254, -81.025273		
<b>USGS Quad Name</b>	Flushing		
<b>County</b>	Harrison		
<b>Township</b>	Cadiz		
<b>Section and Subsection</b>	Cadiz Township		
<b>Hydrologic Unit Code</b>	050400011402		
<b>Site Visit</b>	5-26-21		
<b>National Wetland Inventory Map</b>	PUBGx		
<b>Ohio Wetland Inventory Map</b>	Open Water		
<b>Soil Survey</b>	MwF6F		
<b>Delineation report/map</b>	Figure 4		

Name of Wetland: MMA		
Wetland Size (acres, hectares): 0.42 acres		
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. <div style="text-align: right; margin-top: 10px;">           ↑ N         </div> 		
Comments, Narrative Discussion, Justification of Category Changes: Located in a valley bottom in an area of reclaimed strip mine. Area currently used as pasture		
Final score :	30	Category: 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
<b>Step 1</b>	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	/	
<b>Step 2</b>	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.	/	
<b>Step 3</b>	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.	/	
<b>Step 4</b>	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.	/	
<b>Step 5</b>	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	/	
<b>Step 6</b>	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.	/	

**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	<b>Critical Habitat.</b> 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	<u>NO</u>  Go to Question 2
2	<b>Threatened or Endangered Species.</b> 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	<u>NO</u>  Go to Question 3
3	<b>Documented High Quality Wetland.</b> 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	<u>NO</u>  Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> 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	<u>NO</u>  Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and <b>hydrologically isolated</b> 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	<u>NO</u>  Go to Question 6
6	<b>Bogs.</b> 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	<u>NO</u>  Go to Question 7
7	<b>Fens.</b> 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	<u>NO</u>  Go to Question 8a
8a	<b>"Old Growth Forest."</b> 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	<u>NO</u>  Go to Question 8b

8b	<b>Mature forested wetlands.</b> 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	<b>Lake Erie coastal and tributary wetlands.</b> 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	<b>Lake Plain Sand Prairies (Oak Openings)</b> 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	<b>Relict Wet Prairies.</b> 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.**

<b>invasive/exotic spp</b>	<b>fen species</b>	<b>bog species</b>	<b>Oak Opening species</b>	<b>wet prairie species</b>
<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 viridicarinatum</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: MM4

Rater(s): M. Martin

Date: 5-26-21

2	2
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)

1	3
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	17
max 30 pts.	subtotal

### Metric 3. Hydrology.

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

- ☐ High pH groundwater (3)
- ☐ 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 checked="" 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 checked="" type="checkbox"/> other <u>historic mining</u> |

7	24
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 checked="" type="checkbox"/> mowing    | <input type="checkbox"/> shrub/sapling removal          |
| <input checked="" 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            |

24
subtotal this page

Site: MMA Rater(s): M. Martin Date: 5-21-21

24

subtotal first page

0 24

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 30

max 20 pts.

subtotal

## Metric 6. Plant communities, interspersions, microtopography.

### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☒ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☒ Open water
- ☐ Other

### 6b. horizontal (plan view) Interspersions.

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.

- ☒ Vegetated hummocks/tussocks
- ☒ Coarse woody debris >15cm (6in)
- ☒ Standing dead >25cm (10in) dbh
- ☒ 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

30

End of Quantitative Rating. Complete Categorization Worksheets.

# ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 1.
	Question 6. Bogs	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 7. Fens	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	6	
	TOTAL SCORE	30	Category based on score breakpoints 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?	YES  Wetland is assigned to the appropriate category based on the scoring range	<input checked="" type="radio"/> 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?	<input checked="" type="radio"/> YES  Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	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

**End of Ohio Rapid Assessment Method for Wetlands.**

# STREAM INVENTORY DATA FORM

<b>PROJECT INFORMATION</b>			
PROJECT NAME: <u>Harrison Pipeline</u>		DATE: <u>5-26-21</u>	
PROJECT NUMBER: <u>0201358</u>		COUNTY/STATE: <u>Harrison, OH</u>	
OBSERVER NAME: <u>M. Martin</u>		WEATHER: <u>partly cloudy, 85°</u>	
<b>STREAM INFORMATION</b>			
H&A STREAM ID: <u>MM1</u>	NEAREST FLAG #: <u>MM1-2</u>	WATER WIDTH: <u>dry</u>	
STREAM NAME: <u>unnamed</u>		STREAM WIDTH: <u>2'</u>	
FLOW TYPE: <input type="checkbox"/> PERENNIAL <input type="checkbox"/> INTERMITTENT <input checked="" type="checkbox"/> EPHEMERAL		BANKFULL WIDTH: <u>3'</u>	
PERCEPTIBLE FLOW: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		FLOW DIRECTION: <u>SW</u>	PROBED STREAM DEPTH: <u>dry</u>
OBSERVED WATER QUALITY: <u>N/A</u>		CHANNEL SUBSTRATE: <u>boulder, cobble, gravel, leaves</u>	
<b>AQUATIC HABITAT</b> <input type="checkbox"/> OVERHANGING <input type="checkbox"/> COBBLE RIFFLES <input type="checkbox"/> MUD BAR <input type="checkbox"/> TREES/SHRUBS <input type="checkbox"/> SAND BAR <input type="checkbox"/> SAND/GRAVEL BEACH BAR <input type="checkbox"/> AQUATIC VEGETATION <input type="checkbox"/> DEEP HOLES <input type="checkbox"/> OTHER:			
<b>WILDLIFE OBSERVED</b> <input type="checkbox"/> WATERFOWL <input type="checkbox"/> TURTLES <input type="checkbox"/> INVERTEBRATES <input type="checkbox"/> FISH <input type="checkbox"/> FROGS <input type="checkbox"/> SALAMANDERS <input type="checkbox"/> OTHER:			
<b>OBSERVED USE</b> <input type="checkbox"/> DRINKING <input type="checkbox"/> SWIMMING <input type="checkbox"/> DRAINAGE <input type="checkbox"/> IRRIGATION <input type="checkbox"/> FISHING <input type="checkbox"/> BOATING <input type="checkbox"/> OTHER:			
LEFT BANK HEIGHT: <u>3"</u>	RIGHT BANK HEIGHT: <u>3"</u>	BANK SUBSTRATE: <u>silt loam</u>	
LEFT BANK SLOPE: <u>20%</u>	RIGHT BANK SLOPE: <u>20%</u>	EROSION POTENTIAL: <u>low</u>	
MEANDER: <u>low</u>	GRADIENT: <u>moderate</u>	% CANOPY CLOSURE: <u>0</u>	
ADJACENT COMMUNITY TYPES: <u>pen, pasture</u>			
DOMINANT TREES:			
DOMINANT SHRUBS:			
DOMINANT HERBACEOUS: <u>grasses, sedges, clover</u>			
<b>NOTES</b> Appears to flow toward Brushy Fork.		<b>SKETCH</b> 	

# STREAM INVENTORY DATA FORM

<b>PROJECT INFORMATION</b>			
PROJECT NAME: <u>Harrison Pipeline</u>		DATE: <u>5-26-21</u>	
PROJECT NUMBER: <u>0201358</u>		COUNTY/STATE: <u>Harrison / OH</u>	
OBSERVER NAME: <u>M. Martin</u>		WEATHER: <u>partly cloudy, 85°</u>	
<b>STREAM INFORMATION</b>			
H&A STREAM ID: <u>MM2</u>	NEAREST FLAG #: <u>MMB-3</u>	WATER WIDTH: <u>dry</u>	
STREAM NAME: <u>unnamed</u>		STREAM WIDTH: <u>2'</u>	
FLOW TYPE: <input type="checkbox"/> PERENNIAL <input type="checkbox"/> INTERMITTENT <input checked="" type="checkbox"/> EPHEMERAL		BANKFULL WIDTH: <u>3'</u>	
PERCEPTIBLE FLOW: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		FLOW DIRECTION: <u>SW</u>	PROBED STREAM DEPTH: <u>dry</u>
OBSERVED WATER QUALITY: <u>N/A</u>		CHANNEL SUBSTRATE: <u>boulder, cobble, gravel</u>	
<b>AQUATIC HABITAT</b> <input type="checkbox"/> OVERHANGING <input type="checkbox"/> COBBLE RIFFLES <input type="checkbox"/> MUD BAR <input type="checkbox"/> TREES/SHRUBS <input type="checkbox"/> SAND BAR <input type="checkbox"/> SAND/GRAVEL BEACH BAR <input type="checkbox"/> AQUATIC VEGETATION <input type="checkbox"/> DEEP HOLES <input type="checkbox"/> OTHER:			
<b>WILDLIFE OBSERVED</b> <input type="checkbox"/> WATERFOWL <input type="checkbox"/> TURTLES <input type="checkbox"/> INVERTEBRATES <input type="checkbox"/> FISH <input type="checkbox"/> FROGS <input type="checkbox"/> SALAMANDERS <input type="checkbox"/> OTHER:			
<b>OBSERVED USE</b> <input type="checkbox"/> DRINKING <input type="checkbox"/> SWIMMING <input type="checkbox"/> DRAINAGE <input type="checkbox"/> IRRIGATION <input type="checkbox"/> FISHING <input type="checkbox"/> BOATING <input type="checkbox"/> OTHER:			
LEFT BANK HEIGHT: <u>3"</u>	RIGHT BANK HEIGHT: <u>3"</u>	BANK SUBSTRATE: <u>silt loam</u>	
LEFT BANK SLOPE: <u>20%</u>	RIGHT BANK SLOPE: <u>20%</u>	EROSION POTENTIAL: <u>high</u>	
MEANDER: <u>low</u>	GRADIENT: <u>steep</u>	% CANOPY CLOSURE: <u>30</u>	
ADJACENT COMMUNITY TYPES: <u>scrub shrub</u>			
DOMINANT TREES:			
DOMINANT SHRUBS: <u>honeysuckle</u>			
DOMINANT HERBACEOUS: <u>grasses</u>			
<b>NOTES</b> Appears to flow toward Brushy Fork.		<b>SKETCH</b> 	



# Primary Headwater Habitat Evaluation Form

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

1

SITE NAME/LOCATION **Harrison Pipeline**

SITE NUMBER **MM1** RIVER BASIN  DRAINAGE AREA (mi<sup>2</sup>) **0.10**

LENGTH OF STREAM REACH (ft) **207** LAT. **40.25070** LONG. **-81.02596** RIVER CODE  RIVER MILE

DATE **05/26/21** SCORER **Martin** COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate TYPE boxes (Max of 32). 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"/> BLDR SLABS [16 pts]	<input type="text"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="text"/> 40%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text"/> 5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text"/> 10%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text"/> 15%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text"/> 0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text"/> 30%	<input type="checkbox"/> MUCK [0 pts]	<input type="text"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%**

(A)

Substrate Percentage Check **100%**

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **0**

TOTAL NUMBER OF SUBSTRATE TYPES: **1**

HHEI Metric Points

Substrate Max = 40

1

A + B

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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS  MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

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 type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS  AVERAGE BANKFULL WIDTH (meters): **0.90**

Bankfull Width Max=30

0

This information must also be completed

## RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<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

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

<input 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

### 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 type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

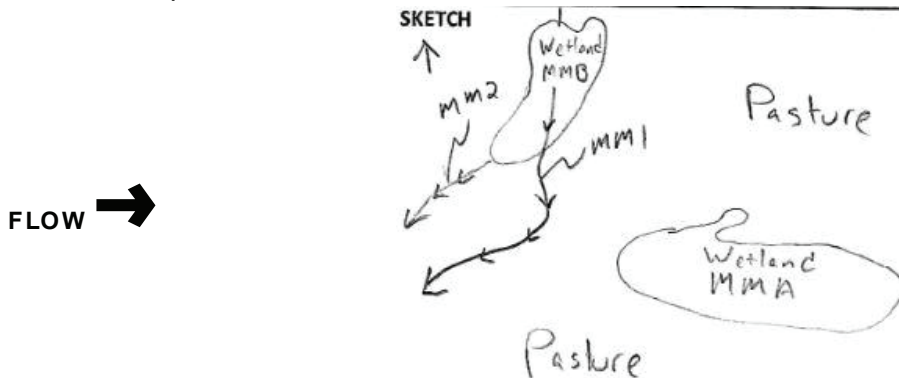
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**QHEI PERFORMED? - ☐ Yes ☐ No QHEI Score  (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**USGS Quadrangle Name: Jewett NRCS Soil Map Page:  NRCS Soil Map Stream Order   
County: Harrison Township / City: Cadiz**MISCELLANEOUS**Base Flow Conditions? (Y/N): Y Date of last precipitation:  Quantity: 0.00  
Photograph Information:   
Elevated Turbidity? (Y/N): N Canopy (% open): 100%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) Y If not, please explain: 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: **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



Stream is located approximately 0.3-mile west of Industrial Park Road.



# Primary Headwater Habitat Evaluation Form

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

18

SITE NAME/LOCATION **Harrison Pipeline**

SITE NUMBER **MM2** RIVER BASIN  DRAINAGE AREA (mi<sup>2</sup>) **0.10**

LENGTH OF STREAM REACH (ft) **16** LAT. **40.25082** LONG. **-81.02622** RIVER CODE  RIVER MILE

DATE **05/26/21** SCORER **Martin** COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate TYPE boxes (Max of 32). 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"/> BLDR SLABS [16 pts]	<input type="text"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="text"/> 10%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text"/> 20%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text"/> 10%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text"/> 50%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text"/> 0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text"/> 10%	<input type="checkbox"/> MUCK [0 pts]	<input type="text"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A)

Substrate Percentage Check **100%** (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12** TOTAL NUMBER OF SUBSTRATE TYPES: **1**

HHEI Metric Points

Substrate Max = 40

13

A + B

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 type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

Pool Depth Max = 30

0

COMMENTS  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 type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

Bankfull Width Max=30

5

COMMENTS  AVERAGE BANKFULL WIDTH (meters): **0.90**

This information must also be completed

## RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
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<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<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

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

<input 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

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

<input checked="" type="checkbox"/>	None	<input type="checkbox"/>	1.0	<input type="checkbox"/>	2.0	<input type="checkbox"/>	3.0
<input 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  (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

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<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: Jewett NRCS Soil Map Page:  NRCS Soil Map Stream Order   
County: Harrison Township / City: Cadiz

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation:  Quantity: 0.00  
Photograph Information:   
Elevated Turbidity? (Y/N): N Canopy (% open): 30%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

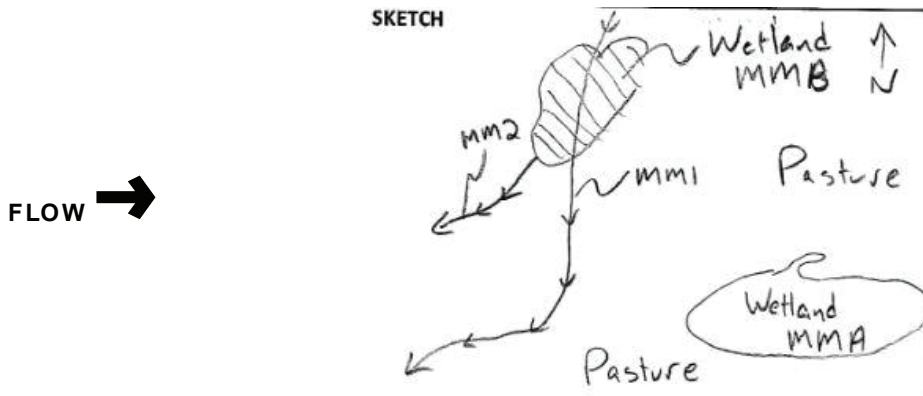
Additional comments/description of pollution impacts:

**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)  
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Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology:

**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



Stream is located approximately 0.3-mile west of Industrial Park Road.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**8/23/2021 4:27:41 PM**

**in**

**Case No(s). 21-0867-GA-BNR**

Summary: Application Part II of Construction Notice Application electronically filed by Mr. Michael J. Settineri on behalf of Harrison Power LLC