

## **EXHIBIT 14**

### **OTHER ENVIRONMENTAL ANALYSES**



Mike DeWine, Governor  
Jon Husted, Lt. Governor  
Laurie A. Stevenson, Director

**December 26, 2019**

**Preliminary Finding of No Significant Impact  
To All Interested Citizens, Organizations, and Government Agencies**

**City of Coshocton – Coshocton County  
West Lafayette Waterline Extension  
Loan Number: FS390286-0005**

The attached Environmental Assessment (EA) is for a water regionalization project from Coshocton to West Lafayette which the Ohio Environmental Protection Agency intends to finance through its Water Supply Revolving Loan Account (WSRLA) below-market interest rate revolving loan program. The EA describes the project, its costs, and expected environmental benefits. We would appreciate receiving any comments you may have on the project. Making available this EA and seeking your comments fulfills Ohio EPA's environmental review and public notice requirements for this loan program, as stated in the Ohio Administrative Code (OAC) 3745-150-06.

Ohio EPA analyzes environmental effects of proposed projects as part of its WSRLA program review and approval process. We have concluded that the proposed project should not result in significant adverse environmental impacts. More information can be obtained by contacting the person named at the end of the attached EA.

Any comments on our preliminary determination should be sent to me at the letterhead address. We will not act on this project for 30 calendar days from the date of this notice to receive and consider comments. In the absence of substantive comments during this period, our preliminary decision will become final. After that, the City of Coshocton can then proceed with its application for the WSRLA loan.

Sincerely,



Jonathan Bernstein, Assistant Chief  
Division of Environmental & Financial Assistance

Attachment

## **ENVIRONMENTAL ASSESSMENT**

### **Project Identification**

Name: Coshocton – West Lafayette Waterline Extension

Applicant: Steven Mercer, Mayor  
City of Coshocton  
760 Chestnut Street  
Coshocton, OH 43812

Loan Number: FS390286-0005

### **Project Summary**

The City of Coshocton in Coshocton County has requested \$6,403,000 from the Ohio Water Supply Revolving Loan Account (WSRLA) to provide water to the Village of West Lafayette by regionalizing with Coshocton and replacing undersized waterlines within the village limits. This regionalization project qualified for a portion of principal forgiveness, which is principal that does not need to be repaid.

Disturbance will be limited to existing roadways, rights-of-way, previously disturbed trenches containing underground telephone wires, and West Lafayette's existing water mains.

### **History and Existing Conditions**

Coshocton operates a groundwater water treatment plant which was expanded in 2008 to produce up to 15 million gallons per day (MGD). It is currently producing an average of 3 MGD.

Located approximately four miles to the east of Coshocton, the Village of West Lafayette operates a water treatment plant rated for 1 MGD which sources water from three groundwater supply wells located adjacent to the treatment plant site. This treatment plant is estimated to need \$2,000,000 in upgrades within the next five years.

The aquifer that supplies drinking water to the West Lafayette water treatment plant is susceptible to contamination. Due to the presence of a contamination plume, the village installed a new treatment system in 1999 which included two air strippers to remove volatile organic compounds from the raw water. However, water quality results indicate the presence of volatile organic compounds.

West Lafayette's water distribution system has several areas with low water pressure and flow, with approximately 27,000 feet of water mains measuring 4-inch diameter or smaller. Water main replacement with larger pipe diameters are needed to provide better flows and pressures.

## **Population and Flow Projections**

West Lafayette currently has 875 service connections on the village water system and serves 2,292 people. Based on 2016 records, the average daily usage was 187,000 gallons per day. Though the population of the village has fluctuated over the past several decades, West Lafayette has a relatively low projected future growth rate and the per capita domestic water demand is expected to remain essentially the same.

## **Alternatives**

- *No action:* Doing nothing, the “no-action” alternative, would continue to allow for West Lafayette’s water supply to be susceptible to contamination with a water distribution system with inadequate pressure and flow. Due to this public health and safety concern, this is not a feasible alternative.
- *Improvements to West Lafayette Water Plant:* The village’s existing water treatment plant could be upgraded as necessary. Though this alternative will be cheaper initially, it would require the long-term commitment of resources to construct, operate, and maintain the proposed improvements.
- *Extend Waterline to West Lafayette:* A water supply line and associated pressure-reducing station could be installed to connect Coshocton’s water supply with West Lafayette’s existing distribution system. Existing wells and treatment facilities would be abandoned. This would allow regionalization between the two communities and utilize existing resources for water treatment.

## **Selected Alternative**

Based on cost analysis, the best option is to regionalize with Coshocton and construct a waterline from Coshocton to West Lafayette. Though this option will have greater costs upfront, it will result in lower water costs and a more reliable water source for residents of West Lafayette.

Coshocton has approximately 12 MGD of available capacity in their water treatment plant. Once connected to Coshocton’s water treatment plant, West Lafayette will eliminate their water treatment plant and existing wells. This enables West Lafayette to provide safe, reliable water service from an established provider.

The water supply main extending from Coshocton will be a 12-inch pipe with associated pressure-reducing station designed to provide 700 gallons per minute (GPM). West Lafayette’s existing water distribution system will remain in operation and undersized waterlines will be replaced as a part of this project. Additional waterlines will be installed in three areas along County Road 16. See Exhibits 1-3 for project details.

## **Implementation**

### *Project Costs*

Coshocton will receive principal forgiveness (principal that does not need to be repaid) from the WSRLA in the amount of \$3,000,000 for regionalization. Coshocton is eligible for a 30-year, 0% loan for the remainder. By receiving WSRLA principal forgiveness, Coshocton will benefit significantly, compared to the market rate of 2.53%. Coshocton will also receive an additional \$1,000,000 in grants from the Appalachian Regional Commission and the Community Development Block Grant program.



### *Project Schedule*

The anticipated loan award will occur in February 2020. Construction is expected to begin immediately and is expected to be completed by January 2021.

### **Public Participation**

This project was presented before the public as an issue on the ballot in the general election of November 2018 and passed. West Lafayette Village Council wished to refrain from approving the agreement between connecting waterlines from Coshocton to West Lafayette until resident approval was received. A newspaper article entitled, "EPA approves funding for Coshocton, West Lafayette water project" was published in the Coshocton Tribune on June 9, 2018. This project was discussed at several council meetings and public information sessions were also held.

Reviews of the respective environmental resources were completed by Ohio EPA, Division of Environmental and Financial Assistance. The State Historic Preservation Office was consulted for technical input, or for conformance with legislation under their jurisdiction.

Ohio EPA will make a copy of this document available to the public on its web page: <http://epa.ohio.gov/defa/ofa.aspx> (Under the "What's New" tab, scroll to "Documents Available for Review and Comment – WSRLA Documents for Review and Comment") and will provide it upon request to interested parties. Information supporting this Environmental Assessment (EA) is available from the project contact named below.

### **Environmental Impacts**

Construction of this project could affect environmental features. Because the project is designed to eliminate the use of a contaminated water treatment system through regionalization, the project is not expected to lead to new development or associated indirect or cumulative environmental impacts.

Construction will occur in previously disturbed areas, within roadways, rights-of-way, and along trenches previously disturbed for underground telephone wires and existing water mains. No change to land use or topography will occur.

### **Air Quality**

Coshocton County is in attainment for all regulated criteria air pollutants applicable to this project. The contractor will prevent unnecessary dust from construction activities from entering the atmosphere. Dust on unsurfaced streets or parking areas and any remaining dust on surfaced streets shall be controlled with water as needed. Because of this approach, there will be no significant adverse short-term or long-term impacts on local air quality.

### **Archaeological and Historical Resources**

Coordination with the State Historic Preservation Office (SHPO) was completed for this project. Further review determined that a Phase 1 archaeological survey had been conducted nearby along similar topography and determined significant findings on and along ridgetop areas, of which this project does not contain.

In the event of archaeological finds during construction, Ohio Revised Code Section 149.53 requires contractors and subcontractors to notify SHPO of any archaeological discoveries in the project area, and to cooperate with the Office in archaeological and historic surveys and salvage efforts when

appropriate. Work will not resume until a survey of the find and a determination of its value and effect has been made, and Ohio EPA authorizes work to continue.

#### Terrestrial Habitat and Endangered Species

Eleven federally listed species occur in Coshocton County: the endangered Indiana bat, the endangered clubshell mussel, the endangered fanshell mussel, the endangered rayed bean, the endangered snuffbox mussel, the endangered purple cat's paw pearly mussel, the endangered sheepnose mussel, the threatened northern long-eared bat, the threatened rabbitsfoot mussel, the species of concern eastern hellbender, and the species of concern bald eagle.

No habitat suited to the clubshell mussel, fanshell mussel, rayed bean, snuffbox mussel, purple cat's paw pearly mussel, sheepnose mussel, rabbitsfoot mussel, eastern hellbender, or bald eagle is in the project area. The Indiana and northern long-eared bats have similar summer maternity and roosting habitat preferences (trees with large crevices or loose, sloughing bark higher than ten feet above the ground). Tree and vegetation removal will occur from October 1 through March 31 when bats are presumed absent from the area. Based on this information, the project will have no significant adverse short-term or long-term effect on terrestrial habitat or endangered species.

#### Farmland Protection

Based on the review of the project planning and design, the project will not remove or change the use of prime farmland, so no farmland losses are expected as a result of this project.

#### Floodplains

According to project planning and design, no construction is scheduled to occur within designated flood hazard zones. Therefore, local floodplain development regulations were met.

#### Ground Water Resources

To avoid adverse impacts to ground water resources, the construction contract includes specifications for appropriate and safe dewatering of deep excavations and management of ground water.

#### Safety, Noise, Traffic, and Aesthetics

A traffic plan has been developed by the contractor prior to commencing construction which includes all proper warning signs and lane closures. The contractor commits to minimize both the extent and duration of the disruption of traffic and disturbance to the neighborhood during construction. Local aesthetics will be unchanged after construction is complete. For these reasons, the project will not adversely affect noise, traffic, public safety, or aesthetics.

#### Surface Water Resources

An Ohio EPA General Storm Water NPDES Permit for Construction Activities will be obtained and the contractor will minimize soil from eroding or otherwise entering onto all paved areas and into natural watercourses, ditches, and public sewer systems. Designated Wild and Scenic Rivers will be unaffected by this project as there are none located within the project's vicinity.

Although Morgan Run is located within the project vicinity, stream crossings will occur by horizontal directional drilling beneath the waterway.

#### Wetlands

According to a review of project planning and design and the Ohio Wetlands Inventory, this project

will contain no in-wetland work and therefore will have no impacts to wetland areas.

#### **Energy Use**

This project will have little effect on local or regional energy supplies. Through utilizing the already existing water treatment plant in Coshocton and the existing water distribution system in the village of West Lafayette, no additional energy from the village is required.

#### **Local Economy**

Coshocton has minimized project costs by obtaining a principal forgiveness loan and additional grants, as well as 0% financing for the remainder of the loan. This allows a lower annual water bill for the new customers than otherwise would be possible. The projected residential water bills with the implementation of this project will be approximately \$478/year. This is approximately 0.8% of the median household income (MHI) of Coshocton, which is \$39,412.

By using WSRLA financing for this project, Coshocton has minimized the economic impact on customers.

#### **Conclusion**

Based upon the available facilities plans, detail plans, and other information for this project, Ohio EPA concludes that no significant short-term or long-term adverse direct environmental impacts will result from the project as related to the environmental features discussed in this Environmental Assessment. This is because these features do not exist in the project area, the features exist but will not be adversely affected, or the impacts of construction will be temporary and mitigated.

This project equally serves the entire affected community and no segment of the community will be faced with additional adverse impacts or be deprived of environmental benefits, compared to any other segment.

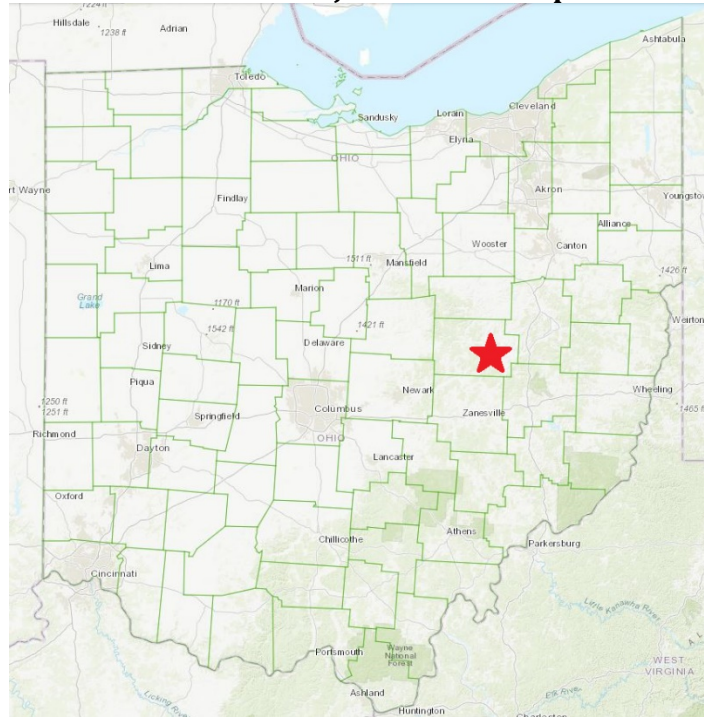
For these reasons, this project, alone or in combination with other projects, is not expected to result in any significant indirect or cumulative short-term or long-term adverse environmental impacts on the quality of the human environment or on sensitive resources.

The project will provide a safe, reliable source of drinking water to the residents of West Lafayette.

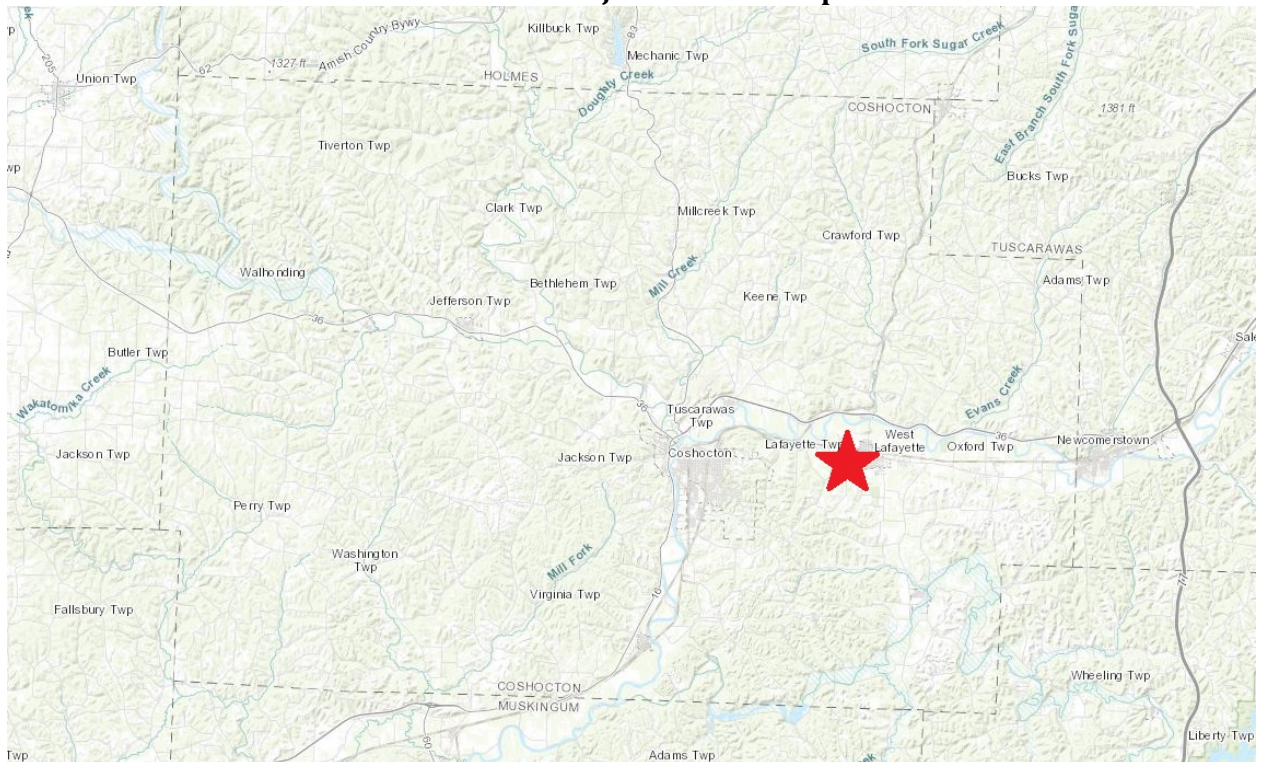
#### **Contact Information**

Kristin Parrish  
Ohio EPA-DEFA  
P.O. Box 1049  
Columbus, OH 43216-1049  
(614) 644-3662  
[kristin.parrish@epa.ohio.gov](mailto:kristin.parrish@epa.ohio.gov)

**Exhibit 1: Project Location Map**



**Exhibit 2: Project Location Map**





**Exhibit 3: Project Location Map (as provided by applicant)**



# WETLAND AND WATERCOURSE DELINEATION AND THREATENED AND ENDANGERED SPECIES EVALUATION REPORT

FOR THE  
WEST LAFAYETTE WATERLINE EXTENSION  
AND REPLACEMENT PROJECT  
LAFAYETTE AND TUSCARAWAS TOWNSHIPS,  
COSHOCOTON COUNTY, OHIO



Submitted to the City of Coshocoton  
February 2020

Prepared by



**TABLE OF CONTENTS**

TABLE OF CONTENTS.....	I
INTRODUCTION .....	1
METHODOLOGY .....	1
AQUATIC ECOLOGY METHODS.....	1
WETLAND METHODS.....	1
LITERATURE REVIEW .....	3
FIELD SURVEY RESULTS .....	4
WETLANDS.....	4
Wetland 1.....	5
Wetland 2.....	5
Wetland 3.....	6
Wetland 4.....	7
Pond.....	8
UPLAND SITES.....	8
WATERCOURSES.....	9
Stream 1 .....	9
Stream 3 .....	9
Stream 4.....	10
Stream 5.....	10
Stream 6-1.....	10
Stream 7.....	10
Stream 8.....	10
Stream 9.....	11
Stream 6-2.....	11
Stream 10.....	11
Stream 12.....	12
THREATENED AND ENDANGERED SPECIES EVALUATION .....	12
Federally Listed Species.....	12
State-Listed Species.....	16
SUMMARY .....	17
LITERATURE CITED .....	20
APPENDIX A: FIGURES .....	A-1
APPENDIX B: STUDY AREA PHOTOGRAPHS.....	B-1
APPENDIX C: WETLAND DETERMINATION FORMS.....	C-1
APPENDIX D: ORAM FORMS .....	D-1
APPENDIX E: ODNR HERITAGE DATA REQUEST .....	E-1



## **INTRODUCTION**

This report describes the findings of the Wetland and Watercourse Delineation and a Threatened and Endangered Species Evaluation conducted for the West Lafayette Waterline Extension and Replacement Project in Lafayette and Tuscarawas townships, Coshocton County, Ohio. The proposed project entails extensions and replacement of existing waterlines. An estimated area of disturbance of 5-feet (ft) on each side of the proposed waterline was used for the limits of project study area. Approximately 42,839 linear ft of new waterline will be installed by trenching. Directional boring will be used in some locations to avoid impacts to features. The 7.39-acre waterline extension project study area and the 3.15-acre waterline replacement project study area were examined for wetlands, watercourses, and listed species habitats by ASC Group, Inc. (ASC) staff on January 27 and 28, 2020. The accompanying mapping (Appendix A: Figures 1–5), photographs (Appendix B: Photographs 1–180), and data sheets (Appendices C and D) depict the associated project study areas. Ohio Department of Natural Resources (ODNR) Natural Heritage Data coordination is provided in Appendix E.

The information provided in this report is based on our understanding of the current U.S. Army Corps of Engineers (USACE) guidelines and our professional judgment. Only the USACE can make the final jurisdictional determination for all areas examined in this report. Coordination with the USACE and/or Ohio Environmental Protection Agency (Ohio EPA) may be required for impacting the features identified in this report.

## **METHODOLOGY**

### **AQUATIC ECOLOGY METHODS**

Secondary source materials including soil surveys, United States Geological Survey (USGS) topographic maps, and National Wetland Inventory (NWI) maps were reviewed to identify locations of potential jurisdictional streams and waterways. A provisional jurisdictional waters determination was performed in the field to determine if waterways possessed a defined channel and streambed as defined by the ordinary high water mark (OHWM).

### **WETLAND METHODS**

The project study area was surveyed for the possible presence of wetlands. Where evidence of wetland vegetation was observed or where soil survey maps indicated the presence of hydric soils (United States Department of Agriculture, Natural Resource Conservation Service [USDA,

NRCS] 2019a) or the NWI maps indicated the presence of wetlands, a routine on-site assessment of each potential wetland was conducted. The entire project study area was surveyed on foot and major vegetative communities were noted. The *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* [USACE 2012] were used to determine whether wetlands were present within the project study area. Wetlands were identified according to the routine determination method outlined in Section D of the manual (Environmental Laboratory 1987). Using this method, the three criteria—hydrological features, vegetation, and soil—were examined and evaluated to determine the presence of wetlands.

When a wetland determination indicated that an area was not a wetland, the location was noted and no further action was taken. When the wetland determination indicated that an area was a wetland, a delineation would be performed to identify the boundary between wetland and non-wetland areas. Both a wetland sampling point and a non-wetland sampling point were completed for each wetland encountered. Wetland determination data forms summarizing the field observations can be found in Appendix C. The wetland determination forms have been organized by sampling point number. The location of the sampling points is shown on the aerial photographs included in Appendix B (Figure 5, Sheets 1–14). The boundary of each wetland was recorded with a Trimble handheld Global Positioning System (GPS) unit with 1-meter accuracy.

The *Ohio Rapid Assessment Method for Wetlands (ORAM) v. 5.0* (Ohio EPA 2001) was used to assess the functional quality of each wetland encountered. The wetland would be assigned a category according to the most recent ORAM score calibration (Mack 2000).

The ODNR Natural Heritage Database was consulted for the presence of any federally or state-listed species known to occur within the current project study area or within a 1-mile radius (Appendix E). The project study area was surveyed for the presence of any federally listed species whose range includes Coshocton County (United States Fish and Wildlife Service [USFWS] 2019a) or state-listed species known to occur within a 1-mile radius of the project study area.

A mussel presence/absence reconnaissance survey would be conducted for any streams in the project study area with a drainage area greater than 10 mile<sup>2</sup>. The streams in the project study area could only be examined for remnant shells since the fieldwork needed to be conducted during the month of January. The survey would follow portions of the Ohio Mussel Survey Protocol (ODNR, USFWS 2018) developed by the ODNR and USFWS.

## LITERATURE REVIEW

The USDA, NRCS's Web Soil Survey website (USDA, NRCS 2019a) was reviewed in order to determine the soil types within the project study area (Appendix A: Figure 3, Sheets 1–4). According to the website, soils within the project study area consist of the following:

- Bhv1D: Bethesda silt loam, 8 to 25 percent slopes, reclaimed\*
- BrF: Brownsville channery silt loam, 35 to 70 percent slopes
- CfA: Chili loam, 0 to 2 percent slopes
- CfB: Chili loam, 2 to 6 percent slopes
- CkD: Clarksburg silt loam, 15 to 25 percent slopes\*
- CoC2: Coshocton silt loam, 6 to 15 percent slopes, eroded
- CoD: Coshocton silt loam, 15 to 25 percent slopes
- CsE: Coshocton-Westmoreland complex, 25 to 35 percent slopes\*
- FhA: Fitchville silt loam, 0 to 3 percent slopes\*
- GnC: Glenford silt loam, 8 to 15 percent slopes
- HaF: Hazleton channery sandy loam, 35 to 70 percent slopes
- JmA: Jimtown loam, 0 to 2 percent slopes\*
- Lo: Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded\*
- MnC: Mentor silt loam, 6 to 15 percent slopes
- Or: Orrville silt loam, 0 to 3 percent slopes, occasionally flooded\*
- RgC: Rigley sandy loam, 6 to 15 percent slopes
- Tk: Tioga fine sandy loam, occasionally flooded
- WaA: Watertown sandy loam, 0 to 2 percent slopes
- WaB: Watertown sandy loam, 2 to 6 percent slopes
- WaC: Watertown sandy loam, 6 to 15 percent slopes
- WaF: Watertown sandy loam, 25 to 70 percent slopes
- WhE: Westmoreland silt loam, 25 to 35 percent slopes

The soils designated with a \* above are either hydric or known to contain hydric inclusions according to the National List of Hydric Soils (USDA, NRCS 2019b).

A review of the NWI mapping (USFWS 2019b) indicated the presence of five (5) mapped wetlands within or immediately adjacent to the project study area (Appendix A: Figure 4, Sheets 1–4). NWI mapping identified one (1) Palustrine, Unconsolidated Bottom, Intermittently Exposed (PUBG) feature adjacent to the study area, one (1) Riverine, Lower Perennial, Unconsolidated Bottom, Permanent (R2UBH) feature and four (4) Riverine, Unknown Perennial, Unconsolidated Bottom, Permanent (R5UBH) features in the project study area.

Four solid blue line streams are identified in the project study area from the Coshocton and Fresno, Ohio quadrangles (USGS 7.5' topographic maps) [Appendix A: Figure 2] and four streams are shown on the NWI Map (Appendix A: Figure 4, Sheets 1–4). The project study areas are

located in the Morgan Run-Tuscarawas River watershed (050400011904) [USDA, NRCS 1999]. The project study areas are primarily located in a Possibly Eligible Ohio EPA, Division of Surface Water 401 Water Quality Certification for Nationwide Permit watershed area. A small portion of the project study area near Township Road (TR) 165 is located in an Ineligible Ohio EPA, Division of Surface Water 401 Water Quality Certification for Nationwide Permit watershed area.

Coshocton County is included in the range of the following federally listed species (USFWS 2019a):

- Indiana bat (*Myotis sodalis*)—Endangered
- Northern long-eared bat (*Myotis septentrionalis*)—Threatened
- Fanshell (*Cyprogenia stegaria*)—Endangered
- Rayed bean (*Villosa fabalis*)—Endangered
- Snuffbox (*Epioblasma triquetra*)—Endangered
- Clubshell (*Pleurobema clava*)—Endangered
- Purple Cat's Paw Pearly Mussel (*Epioblasma obliquata obliquata*)—Endangered
- Sheepnose (*Plethobasus cyphus*)—Endangered
- Rabbit's ft (*Quadrula c. cylindrica*)—Threatened/Critical Habitat

None of these federally listed species have been documented within a 1-mile radius of the proposed alignment from the ODNR Natural Heritage Database search (ODNR 2020).

The following state-listed species have been documented within a 1-mile radius of the proposed alignment from the ODNR Natural Heritage Database search (ODNR 2020):

- Mountain Madtom (*Noturus eleutherus*)—Threatened
- Eastern Spadefoot (*Scaphiopus holbrookii*)—Endangered

## FIELD SURVEY RESULTS

The field surveys to determine if wetlands and watercourses were present for the 7.39-acre waterline extension project study area and the 3.15-acre waterline replacement project study area were conducted on January 27 and 28, 2020 by ASC staff. Water resources documented in the project study area are represented on aerial photographs (Appendix A: Figure 5, Sheets 1–14) and include streams, wetlands, a pond, sample points, and photograph locations.

### WETLANDS

All water features identified within the project study area were evaluated for meeting jurisdictional wetland criteria. Provided below is a summary of each wetland area.

## Wetland 1

Wetland 1 is a palustrine emergent (PEM) wetland according to the Cowardin et al. (1979) classification scheme and is located along the east side of TR 162 (Appendix A: Figure 5, Sheet 4). A portion of the wetland is located inside the project study area. The wetland extends off-site to the east. The wetland appears to be hydrologically connected to Stream 6-1 to the east. One (1) sample point (SP 3) was examined in Wetland 1. Wetland 1 is described in the following paragraphs and depicted in photographs 47–50 (Appendix B). Wetland determination forms documenting the three criteria are included in Appendix C. The wetland area was determined to have an ORAM score of 28.5, which is considered a Category 1 wetland. The ORAM form is included in Appendix D.

Hydrology – Primary Hydrology Indicators observed included Surface Water (A1), Saturation (A3), and Oxidized Rhizospheres on Living Roots (C3). Secondary Hydrology Indicators observed include Sparsely Vegetated Concave Surface (B8), Drainage Patterns (B10), Geomorphic Position (D2), and a positive FAC-Neutral Test (D5). Hydrology within this wetland is provided by precipitation, overland surface flow from the adjacent roadway, and the surrounding landscape. These observations satisfy the hydrology criterion.

Vegetation – Vegetation within Wetland 1 was dominated by: Common Hackberry (*Celtis occidentalis*–FACU), Spreading Bent (*Agrostis stolonifera*–FACW), and Sensitive Fern (*Onoclea sensibilis*–FACW). These observations satisfy the vegetation criterion.

Soils – Within Wetland 1, one (1) soil boring was completed to a depth of approximately 18 inches. The soils observed in this area correspond to the Depleted Matrix (F3) hydric soil indicator as presented in the *Field Indicators of Hydric Soils in the United States, Version 8.2* (USDA, NRCS 2018). This observation satisfies the soils criterion.

## Wetland 2

Wetland 2 is a palustrine emergent (PEM) wetland according to the Cowardin et al. (1979) classification scheme and is located along the east side of TR 162 (Appendix A: Figure 5, Sheet 5). A portion of the wetland is located inside the project study area. The wetland extends off-site to the east. The wetland appears to be hydrologically connected to Stream 7. One (1) sample point (SP 6) was examined in Wetland 2. Wetland 2 is described in the following paragraphs and depicted in photographs 65–67 (Appendix B). Wetland determination forms documenting the three

criteria are included in Appendix C. The wetland area was determined to have an ORAM score of 37, which is considered a Category 2 wetland. The ORAM form is included in Appendix D.

Hydrology – Primary Hydrology Indicators observed included Surface Water (A1), Saturation (A3), Water Stained Leaves (B9), and Hydrogen Sulfide Odor (C1). Secondary Hydrology Indicators observed include Sparsely Vegetated Concave Surface (B8), Drainage Patterns (B10), and Geomorphic Position (D2). Hydrology within this wetland is provided by precipitation, overland surface flow from the adjacent roadway, and the surrounding landscape. Stream 7 flows through this area and provides hydrological inputs. These observations satisfy the hydrology criterion.

Vegetation – Vegetation within Wetland 2 was dominated by: Black Elder (*Sambucus nigra*–FAC) and Bristly Buttercup (*Ranunculus hispidus*–FAC). These observations satisfy the vegetation criterion.

Soils – Within Wetland 2, one (1) soil boring was completed to a depth of approximately 18 inches. The soils observed in this area correspond to the Histosol (A1) and Hydrogen Sulfide (A4) hydric soil indicators as presented in the *Field Indicators of Hydric Soils in the United States, Version 8.2* (USDA. NRCS 2018). These observations satisfy the soils criterion.

### **Wetland 3**

Wetland 3 is a palustrine emergent (PEM) wetland according to the Cowardin et al. (1979) classification scheme and is located east of the CR 16 and TR 165 intersection (Appendix A: Figure 5, Sheet 6). The wetland is located just outside of the project study area. The wetland extends further to the south. The wetland appears to be hydrologically connected to Stream 10 to the east. The wetland is noted for planning purposes. One (1) sample point (SP 8) was examined in Wetland 3. Wetland 3 is described in the following paragraphs and depicted in photographs 94–97 (Appendix B). Wetland determination forms documenting the three criteria are included in Appendix C. The wetland area was determined to have an ORAM score of 26.5, which is considered a Category 1 wetland. The ORAM form is included in Appendix D.

Hydrology – Primary Hydrology Indicators observed included Surface Water (A1), Saturation (A3), and Oxidized Rhizospheres on Living Roots (C3). Secondary Hydrology Indicators observed include Geomorphic Position (D2) and a positive FAC-Neutral Test (D5). Hydrology within this wetland is provided by precipitation, overland surface flow from the adjacent roadway, and the surrounding landscape. The wetland is located adjacent to Stream 10



and may receive hydrologic inputs during periods of high flow. These observations satisfy the hydrology criterion.

Vegetation – Vegetation within Wetland 3 was dominated by: Silky Dogwood (*Cornus amomum*–FACW), Reed Canary Grass (*Phalaris arundinacea*–FACW), and Sensitive Fern (*Onoclea sensibilis*–FACW). These observations satisfy the vegetation criterion.

Soils – Within Wetland 3, one (1) soil boring was completed to a depth of approximately 18 inches. The soils observed in this area correspond to the Depleted Matrix (F3) hydric soil indicator as presented in the *Field Indicators of Hydric Soils in the United States, Version 8.2* (USDA, NRCS 2018). This observation satisfies the soils criterion.

#### **Wetland 4**

Wetland 4 is a palustrine emergent (PEM) wetland according to the Cowardin et al. (1979) classification scheme and is located east of the CR 16 and TR 165 intersection and Wetland 3 (Appendix A: Figure 5, Sheet 6). The wetland is located just outside of the project study area. The wetland extends further to the southwest and appears to be hydrologically isolated. The wetland is noted for planning purposes. One (1) sample point (SP 11) was examined in Wetland 4. Wetland 4 is described in the following paragraphs and depicted in photographs 102 and 103 (Appendix B). Wetland determination forms documenting the three criteria are included in Appendix C. The wetland area was determined to have an ORAM score of 33, which is considered a Category 2 wetland. The ORAM form is included in Appendix D.

Hydrology – Primary Hydrology Indicators observed included Saturation (A3) and Oxidized Rhizospheres on Living Roots (C3). Secondary Hydrology Indicators observed include Geomorphic Position (D2) and a positive FAC-Neutral Test (D5). Hydrology within this wetland is provided by precipitation, overland surface flow from the adjacent roadway, and the surrounding landscape. These observations satisfy the hydrology criterion.

Vegetation – Vegetation within Wetland 4 was dominated by: Reed Canary Grass (*Phalaris arundinacea*–FACW). This observation satisfies the vegetation criterion.

Soils – Within Wetland 4, one (1) soil boring was completed to a depth of approximately 18 inches. The soils observed in this area correspond to the Redox Dark Surface (F6) hydric soil indicator as presented in the *Field Indicators of Hydric Soils in the United States, Version 8.2* (USDA, NRCS 2018). This observation satisfies the soils criterion.



## Pond

A pond with a potential wetland fringe dominated by Broad-leaf Cat-Tail (*Typha latifolia*) was noted adjacent to the project study area, just west of the CR 16/TR 162 intersection (Appendix B: Photographs 42 and 43). The boundary of the pond and wetland fringe was recorded with a GPS and is noted on aerial mapping for planning purposes (Appendix A: Figure 5, Sheet 4). The area adjacent to the pond was planted with mature Norway Spruce (*Picea abies*) trees and sloped up toward the project study area.

## UPLAND SITES

Uplands were characterized by sample points SP 1, SP 2, SP 4, SP 5, SP 7, SP 9, SP 10, and SP 12 (Appendix A: Figure 5, Sheets 2–6). The sample points are described below. Wetland determination forms documenting the lack of the three criteria are included in Appendix C. General photographs of the surrounding upland areas (primarily mowed existing right-of-way and residential areas) are depicted in photographs 1–4, 7–10, 14, 19–22, 25–41, 44–46, 56–58, 62, 63, 74, 76, 80–85, 98–101, 104–110, 114–128, and 131–180 located in Appendix B of the report.

Hydrology – A Primary Hydrology Indicator, Surface Water (A1) was observed at SP 2 and the Geomorphic Position (D2) Secondary Hydrology Indicator were noted for SP 2 and SP 5. The hydrology criterion was only satisfied for SP 2. Hydrology indicators were not observed at the remaining upland sample points.

Vegetation – Vegetation throughout the surrounding uplands in the project study area were dominated by the following: Ash-Leaf Maple (*Acer negundo*–FAC), Garlic-Mustard (*Alliaria petiolata*–FACU), Crow Garlic (*Allium vineale*–FACU), Groundivy (*Glechoma hederacea*–FACU), Kentucky Blue Grass (*Poa pratensis*–FACU), Red Deadnettle (*Lamium purpureum*–UPL), Indian Strawberry (*Duchesnea indica*–UPL), Rambler Rose (*Rosa multiflora*–FACU), Black Raspberry (*Rubus occidentalis*–UPL), Wingstem (*Verbesina alternifolia*–FAC), American Beech (*Fagus grandifolia*–FACU), Christmas Fern (*Polystichum acrostichoides*–FACU), Tall False Rye Grass (*Schedonorus arundinaceus*–FACU), Reed Canary Grass (*Phalaris arundinacea*–FACW), Canadian Goldenrod (*Solidago canadensis*–FACU), and Green-Head Coneflower (*Rudbeckia laciniata*–FACW). The vegetation criterion was only satisfied for SP 10. The remaining upland sample points did not satisfy the vegetation criterion needed for a positive wetland determination.

Soils – SP 2 and SP 5 did satisfy the Depleted Matrix (F3) hydric soil indicator. The soil criterion was only satisfied for SP 2 and SP 5. The soils at the remaining upland points did not correspond to any of the hydric or problematic hydric soil indicators presented in the *Field Indicators of Hydric Soils in the United States, Version 8.2* (USDA, NRCS 2018). See attached data sheets (Appendix C) for specific information which pertains to the project study area upland soils.

## **WATERCOURSES**

During the field investigation twelve (12) streams or watercourses were observed in the project study areas. Each stream is described below.

### **Stream 1**

Stream 1 is located in the western portion of the project study area. The stream crosses the project study area (approximately 11 ft) [Appendix A: Figure 5, Sheet 1]. The stream appears to be an intermittent drainage with an average OHWM width of 4.6 ft with an average depth of 0.5 ft. The stream was flowing at the time of the investigation. The substrates observed in Stream 1 include boulders, cobbles, sand, gravel, and woody debris. Stream 1 is depicted in photographs 5 and 6 located in Appendix B of the report.

### **Stream 2**

Stream 2 is located northeast of the Morgan Run Road and CR 16 intersection (Appendix A: Figure 5, Sheet 2). The stream appears to be an ephemeral drainage with an average OHWM width of 3.6 ft with an average depth of 0.5 ft. The stream was flowing at the time of the investigation. The substrates observed in Stream 2 include boulders, cobbles, sand, gravel, and woody debris. Stream 2 is depicted in photographs 11–13 located in Appendix B of the report.

### **Stream 3**

Stream 3 is located northeast of the Morgan Run Road and CR 16 intersection and Stream 2 (Appendix A: Figure 5, Sheet 2). The stream appears to be an ephemeral drainage with an average OHWM width of 2.7 ft with an average depth of 0.5 ft. The stream was flowing at the time of the investigation. The substrates observed in Stream 3 include cobbles, sand, gravel, and woody debris. A portion of Stream 3 is captured in the CR 16 roadway ditch. Stream 3 is depicted in photographs 15–18 located in Appendix B of the report.

**Stream 4 (Morgan Run)**

Stream 4 (Morgan Run) is located north Stream 3 (Appendix A: Figure 5, Sheets 2 and 3). The stream appears to be a perennial drainage with an average OHWM width of 20 ft with an average depth of 1.25 ft. The stream was flowing at the time of the investigation. The substrates observed in Stream 4 include cobbles, sand, gravel, and woody debris. Stream 4 is depicted in photographs 23 and 24 located in Appendix B of the report.

**Stream 5**

Stream 5 is located off of TR 162 (Appendix A: Figure 5, Sheet 4). The stream appears to be an ephemeral drainage with an average OHWM width of 1.3 ft with an average depth of 0.5 ft. The stream was flowing at the time of the investigation. The flow appeared to originate from groundwater seepage on the west side of the road. The substrates observed in Stream 5 include clay hardpan and woody debris. Stream 5 is depicted in photographs 51–55 located in Appendix B of the report.

**Stream 6-1**

Stream 6 crosses the project study area twice and has been referenced in the report as two segments (Segment 6-1 and Segment 6-2). Stream 6-1 is located off of TR 162, just south of Stream 5 (Appendix A: Figure 5, Sheets 4 and 5). The stream appears to be a perennial drainage with an average OHWM width of 8 ft with an average depth of 1 ft. The stream was flowing at the time of the investigation. The substrates observed in Stream 6-1 include cobbles, sand, gravel, and artificial materials (concrete pieces). Stream 6-1 is depicted in photographs 59–62 located in Appendix B of the report.

**Stream 7**

Stream 7 is located off of TR 162, just south of Stream 6-1 (Appendix A: Figure 5, Sheet 5). The stream appears to be an intermittent drainage with an average OHWM width of 5.1 ft with an average depth of 0.75 ft. The stream was flowing at the time of investigation. The substrates observed in Stream 7 include cobbles, sand, gravel, and woody debris. Stream 7 is depicted in photographs 64–66 and 68–70 located in Appendix B of the report.

**Stream 8**

Stream 8 is located off of TR 162, just south of Stream 7 (Appendix A: Figure 5, Sheet 5). This stream appears to be piped in the project study area. The stream consists of a PVC pipe discharging into the TR 162 ditch which crosses under TR 162 and discharges into an open channel

on the west side of TR 162. The stream appears to be an ephemeral drainage with an average OHWM width of 1.5 ft with an average depth of 0.5 ft on the west side of TR 162. The stream was flowing at the time of the investigation. The substrates observed in Stream 8 include cobbles, sand, gravel, and woody debris. Stream 8 is depicted in photographs 71–75 located in Appendix B of the report.

#### **Stream 9**

Stream 9 is located off of TR 162, just south of Stream 8 (Appendix A: Figure 5, Sheet 5). This stream appears to be piped in the project study area. The stream consists of a clay pipe discharging under TR 162 into an open channel on the west side of TR 162. The stream appears to be an ephemeral drainage with an average OHWM width of 3.0 ft with an average depth of 0.5 ft on the west side of TR 162. The stream was flowing at the time of the investigation. The substrates observed in Stream 9 include clay hardpan, gravel, and artificial material (concrete pieces). Stream 9 is depicted in photographs 77–79 located in Appendix B of the report.

#### **Stream 6-2**

Stream 6 crosses the project study area twice and has been referenced in the report as two segments (Segment 6-1 and Segment 6-2). Stream 6-2 is located off of CR 16, just west of the CR 16/TR 165 intersection (Appendix A: Figure 5, Sheets 4 and 6). The stream appears to be a perennial drainage with an average OHWM width of 6.5 ft with an average depth of 1 ft. The stream was flowing at the time of the investigation. The substrates observed in Stream 6-2 include cobbles, sand, gravel, and woody debris. Stream 6-2 is depicted in photographs 86–91 located in Appendix B of the report.

#### **Stream 10**

Stream 10 is located off of CR 16, just east of the CR 16/TR 165 intersection (Appendix A: Figure 5, Sheet 6). The stream appears to be a perennial drainage with an average OHWM width of 5.2 ft with an average depth of 1 ft. The stream was flowing at the time of the investigation. The substrates observed in Stream 10 include sand, gravel, and detritus. Stream 10 is depicted in photographs 92–93 located in Appendix B of the report.

#### **Stream 11**

Stream 11 is located off of CR 16, east of the CR 16/TR 165 intersection and Wetland 4 (Appendix A: Figure 5, Sheet 7). The stream appears to be a perennial drainage with an average OHWM width of 22 ft with an average depth of 1.5 ft. The stream was flowing at the time of the

investigation. The substrates observed in Stream 11 include cobble, sand, gravel, and detritus. Stream 11 is depicted in photographs 111–113 located in Appendix B of the report.

### Stream 12

Stream 12 is a perennial stream located off of CR 124, just outside of the project study area (Appendix A: Figure 5, Sheet 9). The stream's location is noted for planning purposes. The stream was flowing at the time of the investigation and had an average OHWM width of 18 ft with an average depth of 2 ft. The substrates observed in Stream 12 include cobble, sand, and gravel. Stream 12 is depicted in photographs 129 and 130 located in Appendix B of the report.

## THREATENED AND ENDANGERED SPECIES EVALUATION

### Federally Listed Species

Coshocton County is included in the range of the following federally listed species (USFWS 2019a):

- Indiana bat (*Myotis sodalis*)—Endangered
- Northern long-eared bat (*Myotis septentrionalis*)—Threatened
- Fanshell (*Cyprogenia stegaria*)—Endangered
- Rayed bean (*Villosa fabalis*)—Endangered
- Snuffbox (*Epioblasma triquetra*)—Endangered
- Clubshell (*Pleurobema clava*)—Endangered
- Purple Cat's Paw Pearly Mussel (*Epioblasma obliquata obliquata*)—Endangered
- Sheepnose (*Plethobasus cyphus*)—Endangered
- Rabbit's ft (*Quadrula c. cylindrica*)—Threatened/Critical Habitat

No federally listed species have been documented within a 1-mile radius of the proposed waterline alignment from the ODNR Natural Heritage Database search (Appendix E: ODNR 2020). A Federally listed species habitat evaluation was conducted for the project study areas. All species with ranges that include Coshocton County were addressed during the evaluation. The findings are provided below.

### Indiana bat (*Myotis sodalis*)—Endangered

The range of the federally endangered Indiana bat (*Myotis sodalis*) includes Coshocton County (USFWS 2019a). The Indiana bat life cycle requires suitable summer roosting and brood-rearing habitat (which includes living or standing dead trees or snags with exfoliating, peeling, or loose bark, split trunks and/or branches, or cavities) and suitable hibernacula during the winter months (typically caves or abandoned mines that provide cool, humid, stable conditions for hibernation).

Suitable Wooded Habitat (SWH) for this species is any tree-covered area that is 0.5 acre (ac) or larger, containing any potential roosts (i.e., live trees and/or snags  $\geq 3$  inches diameter at breast height [dbh] that have exfoliating bark, cracks, crevices, and/or cavities) greater than 13 ft tall and at least 3 inches dbh, or any patch of trees with these characteristics that is less than 0.5 ac in size but is within 1,000 ft of or connected by a travel corridor to a potential maternity roost tree, 0.5-ac or larger stand of SWH, or any patch of wooded riparian buffer. Additionally, these species may use bridges over streams as summer roosting habitat.

There are no records for this species within a 1-mile radius of the project study area (Appendix E: ODNr 2020). No individuals were observed during the survey on January 27 and 28, 2020. The project study area does not contain SWH for the species. The project takes place inside existing right-of-way that has been historically cleared. No tree cutting will take place for this project. If trees are encountered they will be bored under. No Potential Maternity roost trees were observed in the proposed alignment. A survey of the project study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for the bat. Impacts to potential habitat for this species are not expected.

#### **Northern long-eared bat (*Myotis septentrionalis*)—Threatened**

The range of the federally threatened northern long-eared bat (*Myotis septentrionalis*) includes Coshocton County (USFWS 2019a). During the summer, northern long-eared bats typically roost singly or in colonies underneath bark or in cavities, crevices, or hollows of both live and dead trees and/or snags (typically  $\geq 3$  inches dbh). Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on presence of cavities or crevices or presence of peeling bark. It has also been occasionally found roosting in structures like barns and sheds (particularly when suitable tree roosts are unavailable). They forage for insects in upland and lowland woodlots and tree-lined corridors. During the winter, northern long-eared bats predominantly hibernate in caves and abandoned mine portals.

SWH for this species is any tree-covered area that is 0.5 ac or larger, containing any potential roosts (i.e., live trees and/or snags  $\geq 3$  inches dbh that have exfoliating bark, cracks, crevices, and/or cavities) greater than 13 ft tall and at least 3 inches dbh, or any patch of trees with these characteristics that is less than 0.5 ac in size but is within 1,000 ft of or connected by a travel

corridor to a potential maternity roost tree, 0.5-ac or larger stand of SWH, or any patch of wooded riparian buffer. Additionally, these species may use bridges over streams as summer roosting habitat.

There are no records for this species within a 1-mile radius of the project study area (Appendix E: ODNR 2020). No individuals were observed during the survey on January 27 and 28, 2020. The project study area does not contain SWH for the species. The project takes place inside existing right-of-way that has been historically cleared. No tree cutting will take place for this project. If trees are encountered they will be bored under. No Potential Maternity roost trees were observed in the proposed alignment. A survey of the project study area did not identify any portals, openings, cracks, or crevices in rock outcrops that may be an entrance to a cave or mine that would be considered suitable winter hibernacula habitat for the bat. Impacts to potential habitat for this species are not expected.

#### **Fanshell (*Cyprogenia stegaria*)—Endangered**

The range of the federally endangered Fanshell (*Cyprogenia stegaria*) includes Coshocton County (USFWS 2019a). The fanshell generally lives in medium to large rivers. It buries itself in sand or gravel in deep water of moderate current, with only the edge of its shell and its feeding siphons exposed. There are no records of this species within a 1-mile radius of the project study area (Appendix E: ODNR 2020). The streams in the project study area do not appear to have the appropriate hydrology to support mussel populations. All the streams observed in the project study area have a drainage area of less than or equal to 5.31 mile<sup>2</sup>. Impacts to potential habitat for this species are not expected.

#### **Rayed bean (*Villosa fabalis*)—Endangered**

The range of the federally endangered rayed bean (*Villosa fabalis*) includes Coshocton County (USFWS 2019a). The rayed bean generally lives in smaller headwater creeks, but are sometimes found in large rivers and wave-washed areas of glacial lakes, including Lake Erie. They prefer gravel or sand substrates and are often found in and around roots of aquatic vegetation. There are no records of this species within a 1-mile radius of the project study area (Appendix E: ODNR 2020). The streams in the project study area do not appear to have the appropriate hydrology to support mussel populations. All the streams observed in the project study area have a drainage area of less than or equal to 5.31 mile<sup>2</sup>. Impacts to potential habitat for this species are not expected.



**Snuffbox (*Epioblasma triquetra*)—Endangered**

The range of the federally endangered snuffbox (*Epioblasma triquetra*) includes Coshocton County (USFWS 2019a). The habitat preference is medium to large rivers with clear water and gravel riffles. There are no records of this species within a 1-mile radius of the project study area (Appendix E: ODNR 2020). The streams in the project study area do not appear to have the appropriate hydrology to support mussel populations. All the streams observed in the project study area have a drainage area of less than or equal to 5.31 mile<sup>2</sup>. Impacts to potential habitat for this species are not expected.

**Clubshell (*Pleurobema clava*)—Endangered**

The range of the federally endangered clubshell (*Pleurobema clava*) includes Coshocton County (USFWS 2019a). The habitat preference includes clean, loose sand, and gravel in small to medium rivers and streams. There are no records of this species within a 1-mile radius of the project study area (Appendix E: ODNR 2020). The streams in the project study area do not appear to have the appropriate hydrology to support mussel populations. All the streams observed in the project study area have a drainage area of less than or equal to 5.31 mile<sup>2</sup>. Impacts to potential habitat for this species are not expected.

**Purple Cat's Paw Pearly Mussel (*Epioblasma obliquata obliquata*)—Endangered**

The range of the federally endangered Purple Cat's Paw Pearly Mussel (*Epioblasma obliquata obliquata*) includes Coshocton County (USFWS 2019a). This mussel lives in large rivers of the Ohio river basin. It prefers shallow water and requires a swift current to avoid being buried in silt. It is found on bottom substrates ranging from sand to boulders. There are no records of this species within a 1-mile radius of the project study area (Appendix E: ODNR 2020). The streams in the project study area do not appear to have the appropriate hydrology to support mussel populations. All the streams observed in the project study area have a drainage area of less than or equal to 5.31 mile<sup>2</sup>. Impacts to potential habitat for this species are not expected.

**Sheepnose (*Plethobasus cyphus*)—Endangered**

The range of the federally endangered Sheepnose (*Plethobasus cyphus*) includes Coshocton County (USFWS 2019a). This mussel lives in larger rivers and streams where it is usually found in shallow areas with moderate to swift currents flowing over coarse sand and gravel. There are no records of this species within a 1-mile radius of the project study area (Appendix E: ODNR 2020). The streams in the project study area do not appear to have the

appropriate hydrology to support mussel populations. All the streams observed in the project study area have a drainage area of less than or equal to 5.31 mile<sup>2</sup>. Impacts to potential habitat for this species are not expected.

### **Rabbit's Foot (*Quadrula c. cylindrica*)—Threatened/Critical Habitat**

The range of the federally threatened rabbit's foot (*Quadrula c. cylindrica*) includes Coshocton County (USFWS 2019a). The habitat preference is typically in clear, shallow, small to medium rivers with sand and gravel substrates. There are no records of this species within a 1-mile radius of the project study area (Appendix E: ODNr 2020). The streams in the project study area do not appear to have the appropriate hydrology to support mussel populations. All the streams observed in the project study area have a drainage area of less than or equal to 5.31 mile<sup>2</sup>. Impacts to potential habitat for this species are not expected.

### **State-Listed Species**

The following state-listed species have been documented within a 1-mile radius of the proposed alignment from the ODNr Natural Heritage Database search (ODNR 2020):

- Mountain Madtom (*Noturus eleutherus*) –Threatened
- Eastern Spadefoot (*Scaphiopus holbrookii*) –Endangered

A state-listed species field habitat evaluation was conducted for the project study areas. All species identified during the ODNr Natural Heritage Database review were addressed during the evaluation. The findings are provided below.

### **Mountain Madtom (*Noturus eleutherus*) –Threatened**

The mountain madtom (*Noturus eleutherus*) is found in deep swift riffles of large rivers. They usually are found in and around cobbles and boulders. The streams in the project study area do not appear to have the appropriate hydrology to support mountain madtom populations. All of the streams observed in the project study area have a drainage area of less than or equal to 5.31 mi<sup>2</sup>. Impacts to this species are not expected.

### **Eastern Spadefoot (*Scaphiopus holbrookii*) –Endangered**

The eastern spadefoot (*Scaphiopus holbrookii*) is found only in areas of sandy soils that are associated with river valleys in southeastern Ohio. Breeding habitats are located within these areas and may include flooded agricultural fields or other water-holding depressions. There is no potential habitat for this species in the project study area. The majority of the project is in existing

right-of-way or residential areas that are highly disturbed. Impacts to potential habitat are not expected.

## SUMMARY

A wetland and watercourse investigation was conducted on January 27 and 28, 2020 by ASC staff for the West Lafayette Waterline Extension and Replacement Project in Lafayette and Tuscarawas townships, Coshocton County, Ohio.

Two (2) wetland habitats (Wetlands 1–2), totaling 0.01301 acre, were identified and delineated within the project study area. Wetlands 3 and 4 were delineated as well and were determined to be located just outside of the project study area boundary. Wetlands 3 and 4 are noted for planning purposes. The wetland features are summarized in Table 1 below.

Table 1. Wetland Summary for the West Lafayette Waterline Extension and Replacement Project in Lafayette and Tuscarawas Townships, Coshocton County, Ohio.

Wetland Name	Photograph Number	Wetland Classification*	Location (Lat., Long.)	ORAM Score and Category	Total Area Delineated Within the Project Study Area (Acres)
Wetland 1	47–50	PEM	40.2770458916, - 81.7956584775	28.5 (Cat1)	0.00001*
Wetland 2	65–67	PEM	40.2724234997, - 81.7957975628	37 (Cat 2)	0.013*
Wetland 3	94–97	PEM	40.2775828353, - 81.7899742995	26.5 (Cat 1)	N/A -- Adjacent to project study area*
Wetland 4	102, 103	PEM	40.277868883, - 81.787274256	33 (Cat 2)	N/A - Adjacent to project study area*
<b>Total Within Project Study Area</b>					<b>0.01301</b>
* Cowardin et al. (1979)					
** Wetland Extends Outside of the Project Study Area					

Twelve (12) stream segments or watercourses, totaling 183 linear ft, were observed in the project study area. Approximately 109 ft of ephemeral stream channel (Streams 2, 3, 5, 8, and 9), 20 ft of which is piped (Streams 8 and 9), is located in the project study area. In addition, 21 linear ft of intermittent stream channel (Streams 1 and 7) and 53 linear ft of perennial stream channel (Streams 4, 6-1, 6-2, 10, and 11) is located in the project study area. The stream features are summarized in Table 2 below.

Table 2. Stream summary for the West Lafayette Waterline Extension and Replacement Project in Lafayette and Tuscarawas Townships, Coshocton County, Ohio.

Stream Name	Photos	Lat/Long	OHWB Width (ft)	OHWB Depth (ft)	Upstream Drainage Area (mi <sup>2</sup> )	Stream Substrates	Flow Regime	Length within the Project Study Area (ft)
Stream 1	5, 6	40.2731683558, -81.8160238953	4.6	0.5	<0.04	boulders, cobbles, sand, gravel, and woody debris	Intermittent	11
Stream 2	11–13	40.2711438646, -81.8107511648	3.6	0.5	<0.04	boulders, cobbles, sand, gravel, and woody debris	Ephemeral	10
Stream 3	15–18	40.2736502596, -81.8076586491	2.7	0.5	<0.04	cobbles, sand, gravel, and woody debris	Ephemeral	69
Stream 4 (Morgan Run)	23, 24	40.276147115, -81.8069992347	20.0	1.25	3.82	cobbles, sand, gravel, and woody debris	Perennial	11
Stream 5	51–55	40.274326505, -81.7957465707	1.3	0.5	<0.04	clay hardpan and woody debris	Ephemeral	10
Stream 6-1	59–62	40.273733354, -81.7957897695	8.0	1.0	1.39	cobbles, sand, gravel, and artificial materials	Perennial	11
Stream 7	64–66, 68–70	40.2724674373, -81.7958223628	5.1	0.75	0.04	cobbles, sand, gravel, and woody debris	Intermittent	10
Stream 8	71–75	40.270715006, -81.7958946898	1.5	0.5	<0.04	cobbles, sand, gravel, and woody debris	Ephemeral	10
Stream 9	77–79	40.2700743594, -81.7959195711	3.0	0.5	<0.04	clay hardpan, gravel, and artificial material	Ephemeral	10
Stream 6-2	86–91	40.2775854624, -81.7907931718	6.5	1.0	1.52	cobbles, sand, gravel, and woody debris	Perennial	10
Stream 10	92, 93	40.2776884846, -81.7897485595	5.2	1.0	0.84	sand, gravel, and detritus	Perennial	11
Stream 11	111–113	40.2780763219, -81.7774636194	22.0	1.5	5.31	cobble, sand, gravel, and detritus	Perennial	10
<b>Total Within Project Study Area</b>								<b>183</b>

Impacts to potential habitat for federal and state-listed species are not expected for the waterline extension and replacement project. The proposed project will take place inside of existing right-of-way that has been historically cleared or within mowed residential areas. No tree cutting will take place for this project. If trees are encountered they will be directionally bored under. Additionally, the streams in the project area do not appear to have the appropriate hydrology to support listed mussel populations. Impacts to potential habitat for listed species is not anticipated.

The information provided in this report is based on our understanding of the current USACE guidelines and our professional judgment. Only the USACE can make the final jurisdictional determination for all areas examined in this report. Coordination with the USACE and/or Ohio EPA may be required for impacting the features identified in this report.

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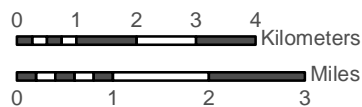
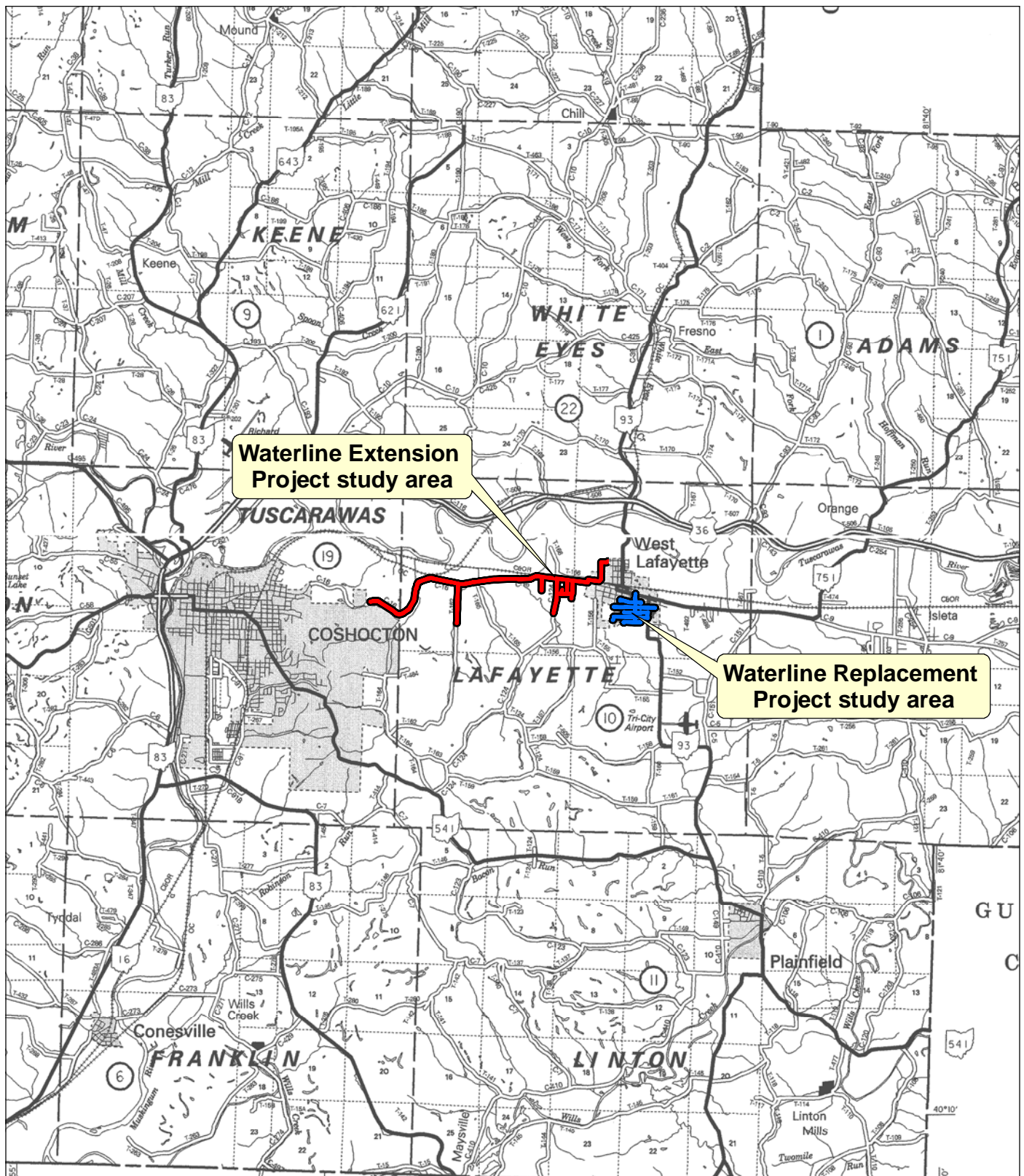
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## **APPENDIX A: FIGURES**

- ODOT County Map
- USGS
- Soils
- NWI
- Aerial Photograph Resource and Photograph Location Maps

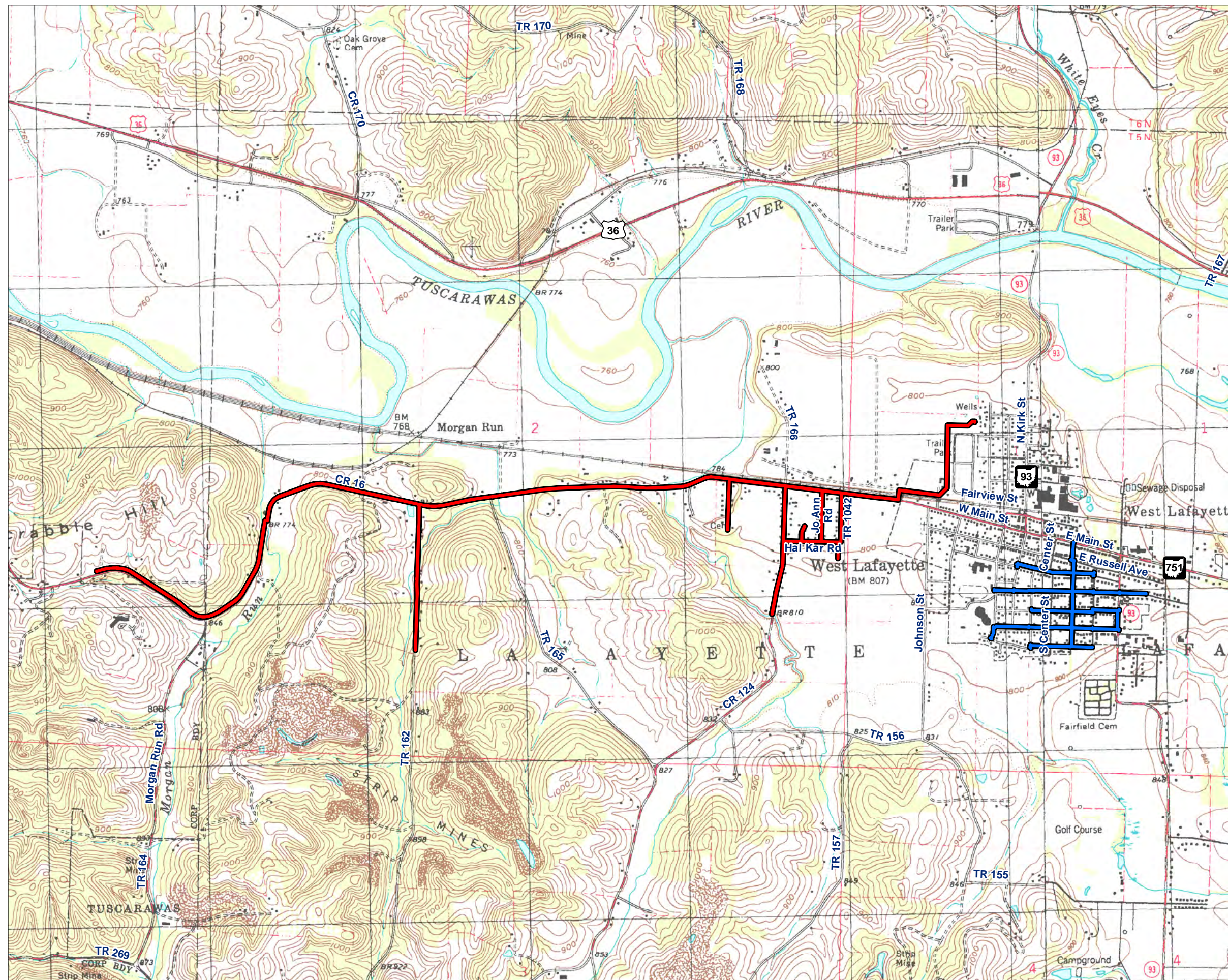




**Figure 1**

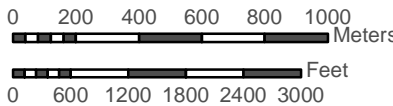
Portion of the ODOT Coshocton County highway map showing the vicinity of the West Lafayette Waterline Extension and Replacement Project study areas.





- Waterline Extension Project study area
- Waterline Replacement Project study area

Base: USGS Coshocton and Fresno, Ohio,  
7.5' series quadrangles



**Figure 2**  
Portion of the 1992 Coshocton and 1993 Fresno  
quadrangles (USGS 7.5' topographic maps)  
showing the West Lafayette Waterline Extension  
and Replacement Project study areas.

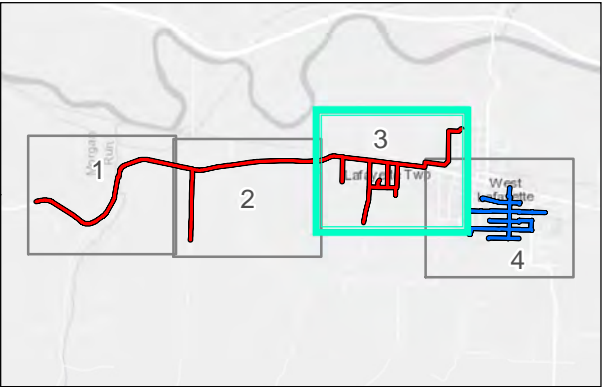
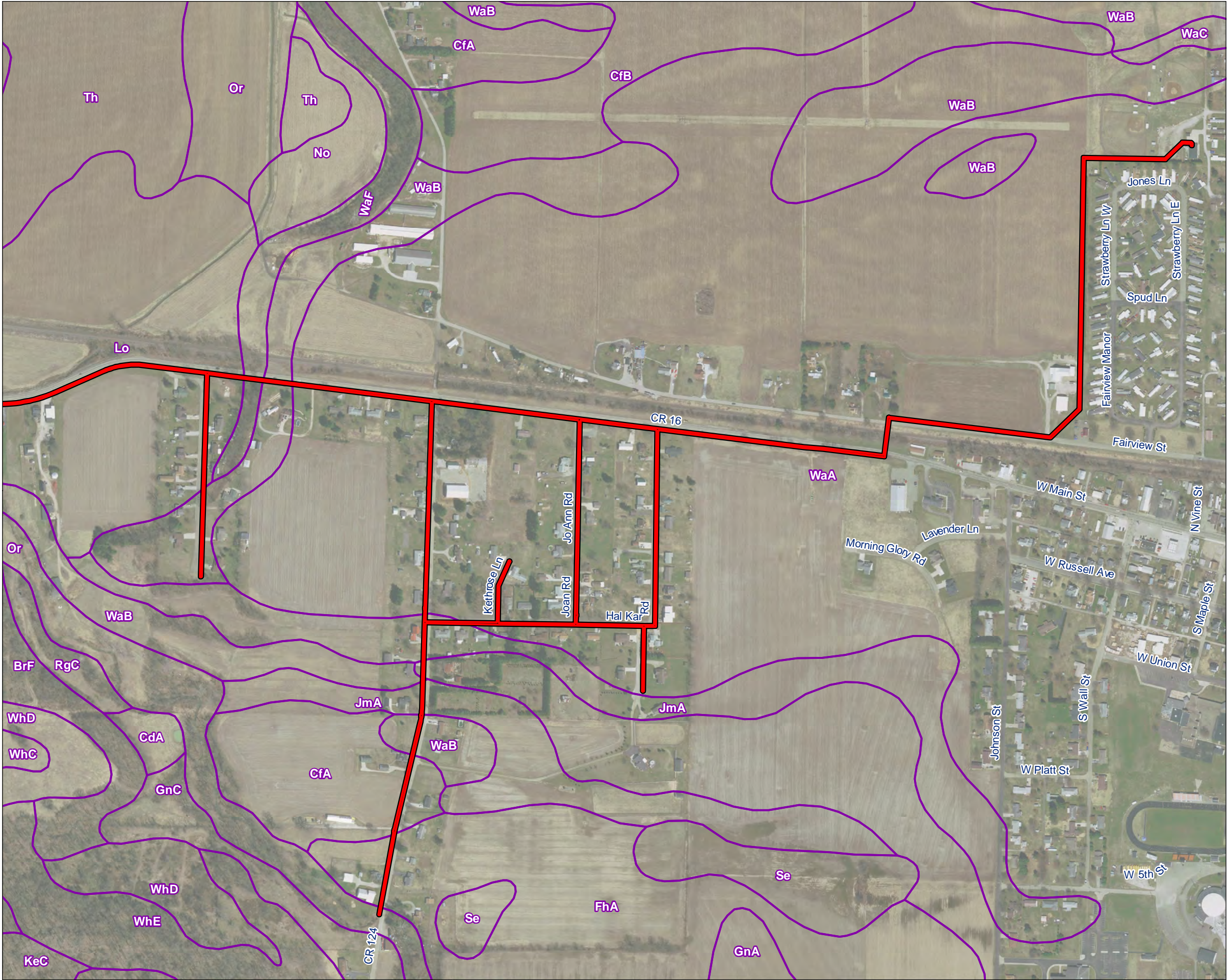






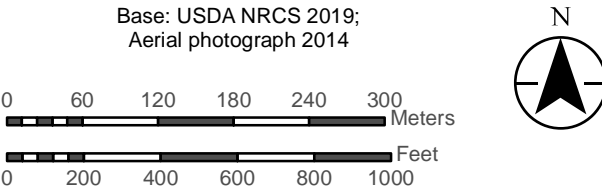








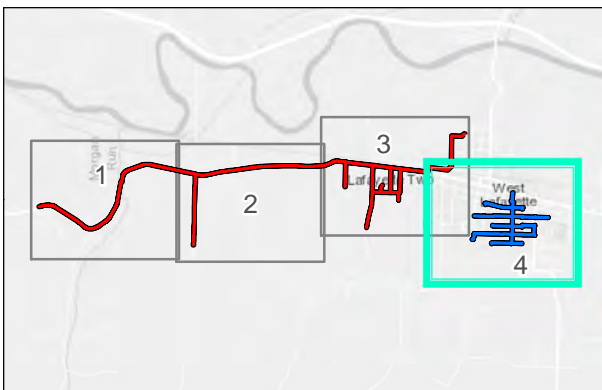
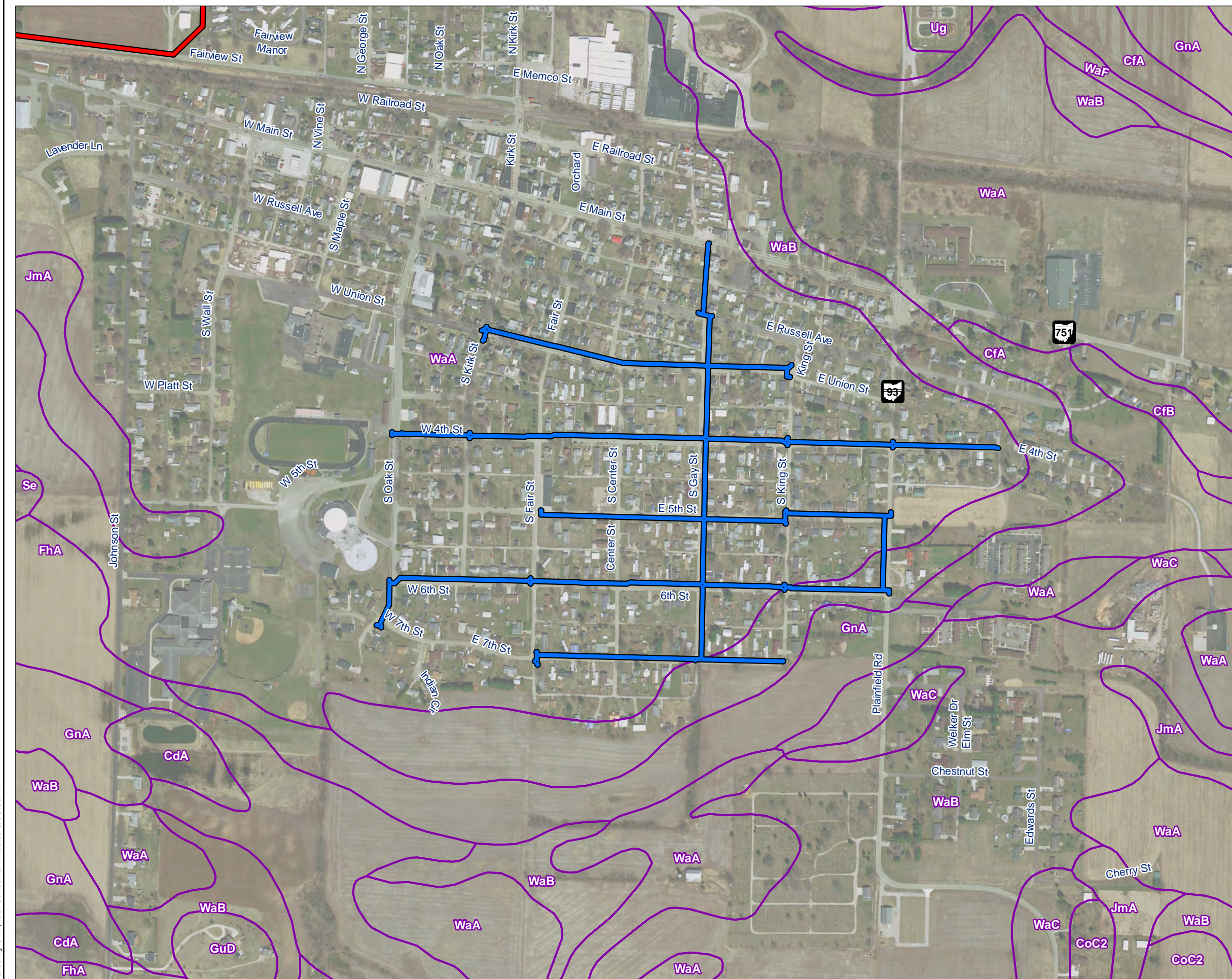
-  Waterline Extension Project study area
-  Soil boundary
- CfA: Chili loam, 0 to 2 percent slopes
- FhA: Fitchville silt loam, 0 to 3 percent slopes
- JmA: Jimtown loam, 0 to 2 percent slopes
- Lo: Lobdell silt loam, 0 to 3 percent slopes, occasionally flooded
- Or: Orrville silt loam, 0 to 3 percent slopes, occasionally flooded
- WaA: Watertown sandy loam, 0 to 2 percent slopes
- WaB: Watertown sandy loam, 2 to 6 percent slopes
- WaF: Watertown sandy loam, 25 to 70 percent slopes






**Figure 3** **Sheet 3 of 4**

Portion of the soil survey of Coshocton County (USDA, NRCS 2019) map showing the West Lafayette Waterline Extension and Replacement Project study areas (4 Sheets).





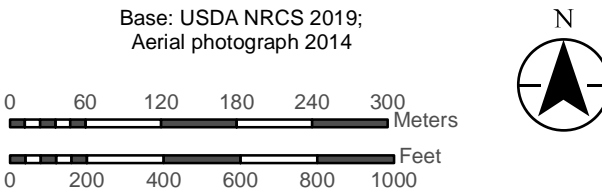
-  Waterline Extension Project study area
-  Waterline Replacement Project study area
-  Soil boundary

FhA: Fitchville silt loam, 0 to 3 percent slopes

JmA: Jimtown loam, 0 to 2 percent slopes

WaA: Watertown sandy loam, 0 to 2 percent slopes

WaB: Watertown sandy loam, 2 to 6 percent slopes

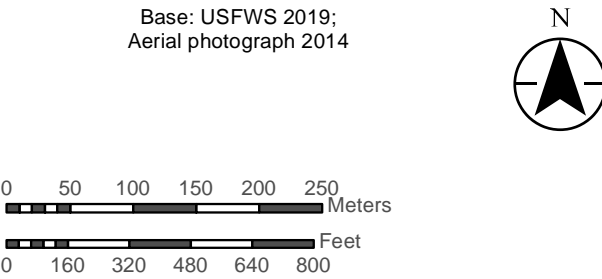
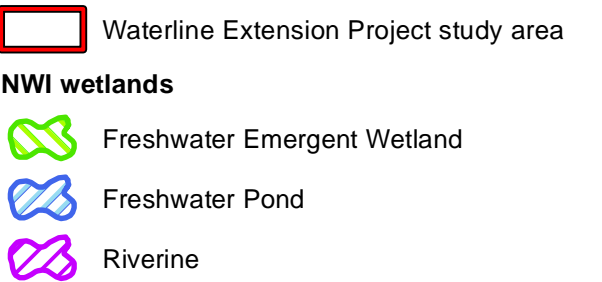
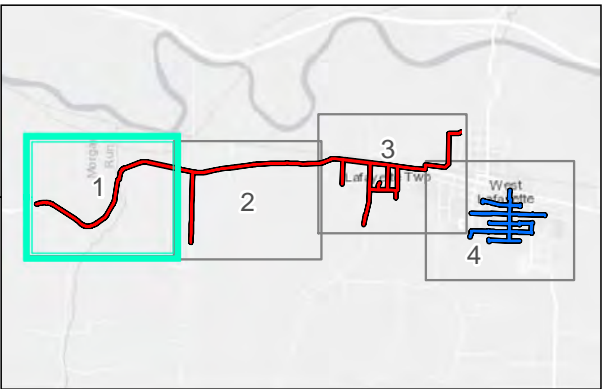
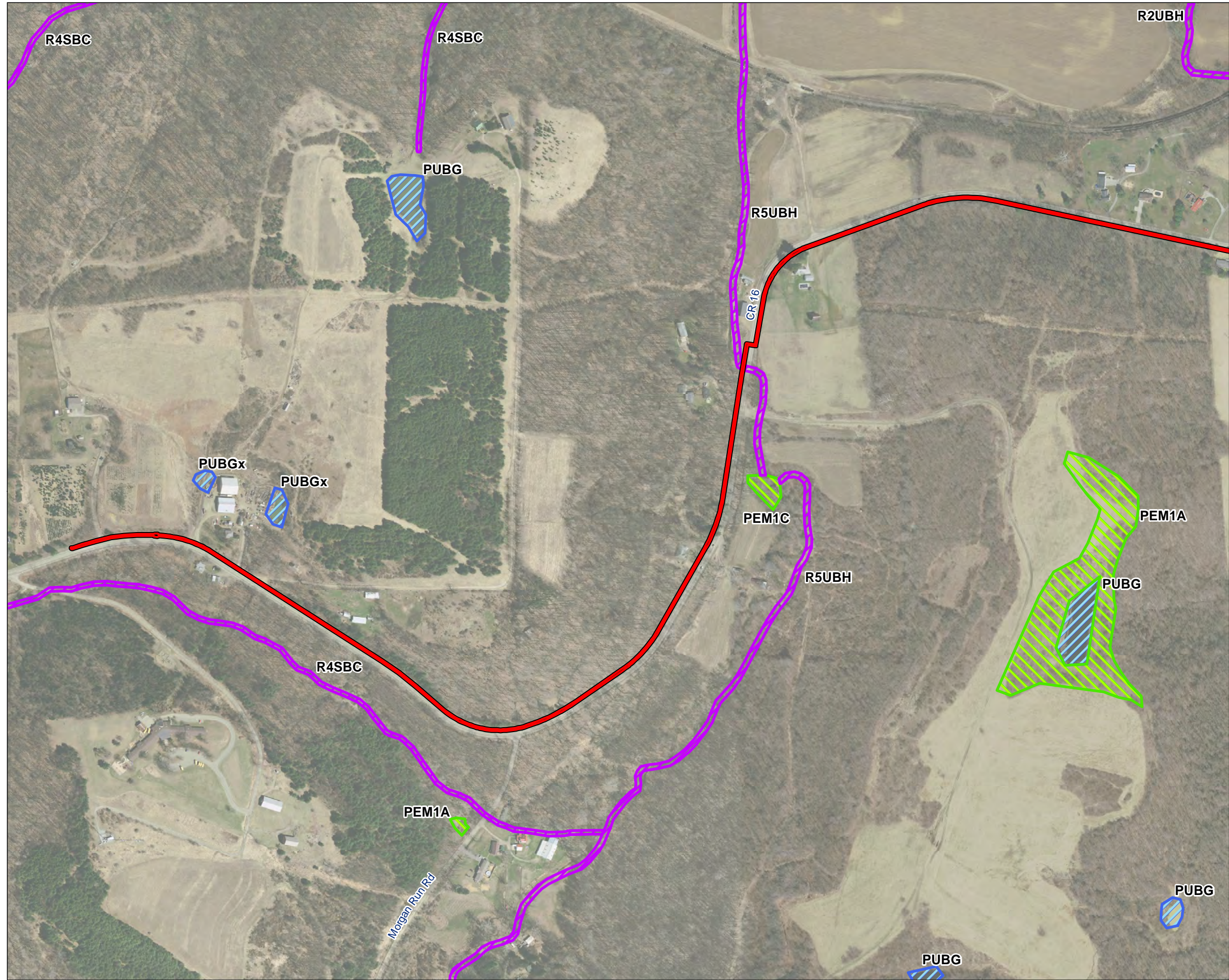


**Figure 3** **Sheet 4 of 4**

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Portion of the soil survey of Coshocton County (USDA, NRCS 2019) map showing the West Lafayette Waterline Extension and Replacement Project study areas (4 Sheets).

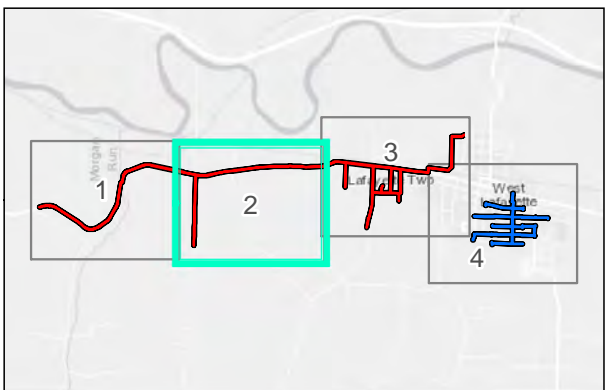
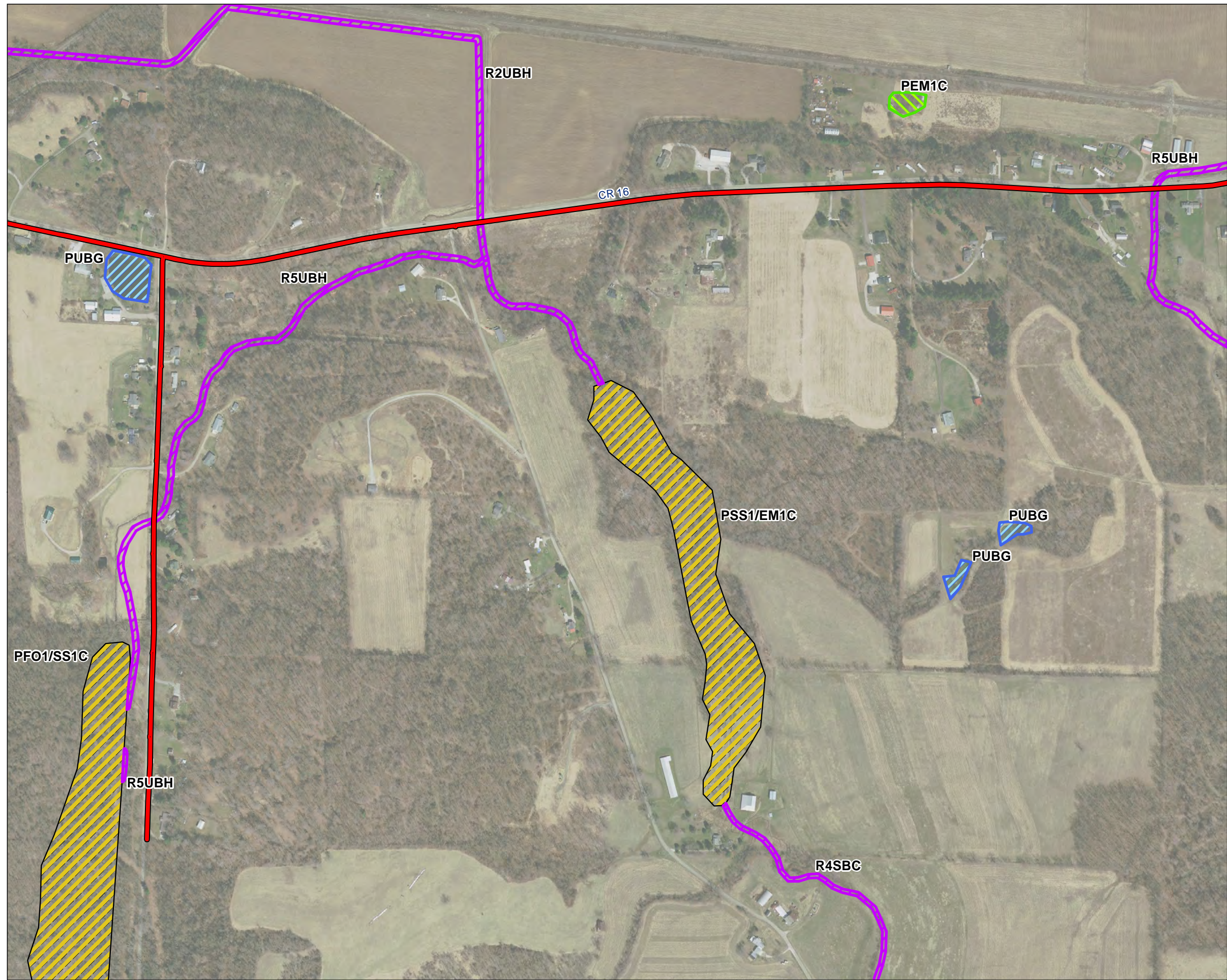




**Figure 4** **Sheet 1 of 4**

Portion of the National Wetland Inventory (NWI) map (USFWS 2019) showing the West Lafayette Waterline Extension and Replacement Project study areas (4 Sheets).



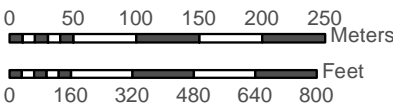


Waterline Extension Project study area

**NWI wetlands**

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

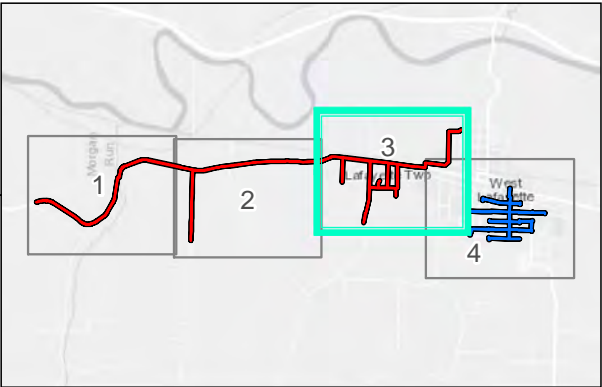
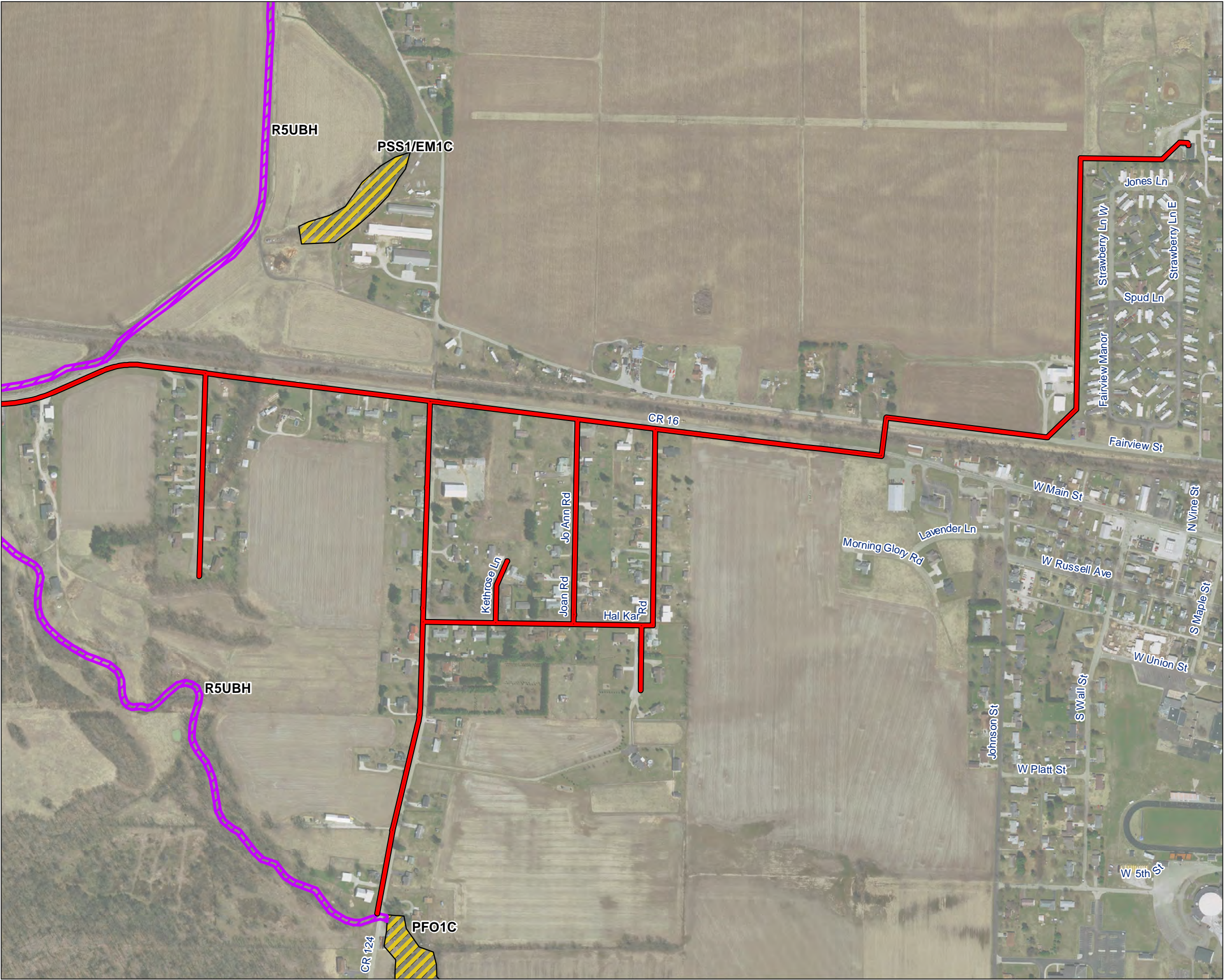
Base: USFWS 2019;  
Aerial photograph 2014



**Figure 4** **Sheet 2 of 4**  
Portion of the National Wetland Inventory (NWI) map (USFWS 2019) showing the West Lafayette Waterline Extension and Replacement Project study areas (4 Sheets).



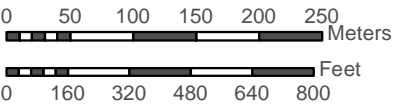
Created by JVT; last saved: 2/20/2020 3:07:05 PM



- Waterline Extension Project study area**
- NWI wetlands**
- Freshwater Forested/Shrub Wetland
  - Riverine

Base: USFWS 2019;  
Aerial photograph 2014

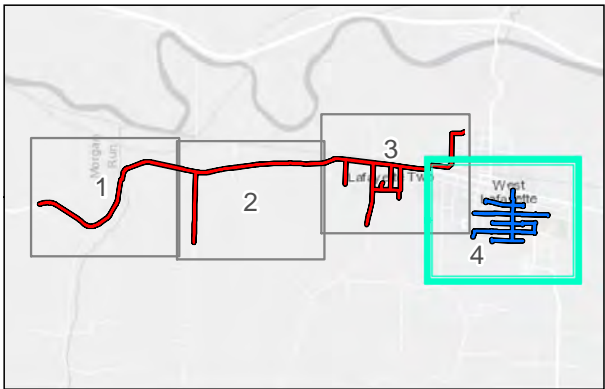
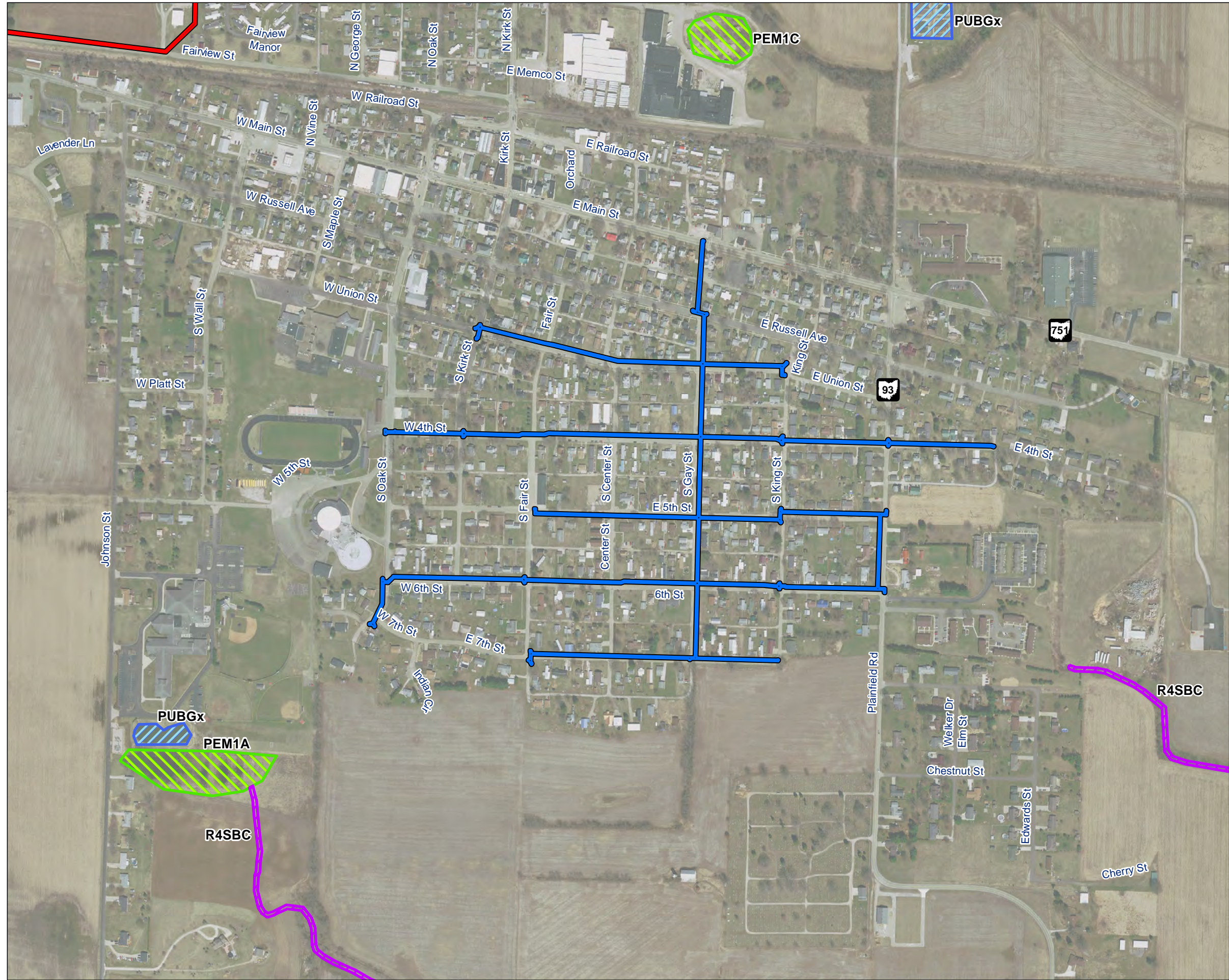
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**Figure 4** **Sheet 3 of 4**

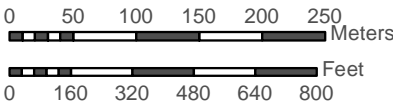
Portion of the National Wetland Inventory (NWI) map (USFWS 2019) showing the West Lafayette Waterline Extension and Replacement Project study areas (4 Sheets).





- Waterline Extension Project study area
- Waterline Replacement Project study area
- NWI wetlands**
- Freshwater Emergent Wetland
  - Freshwater Pond
  - Riverine

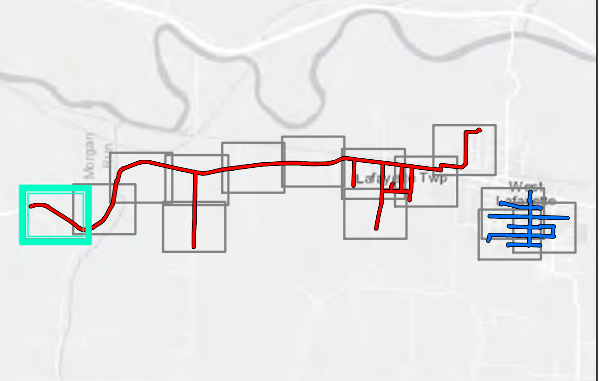
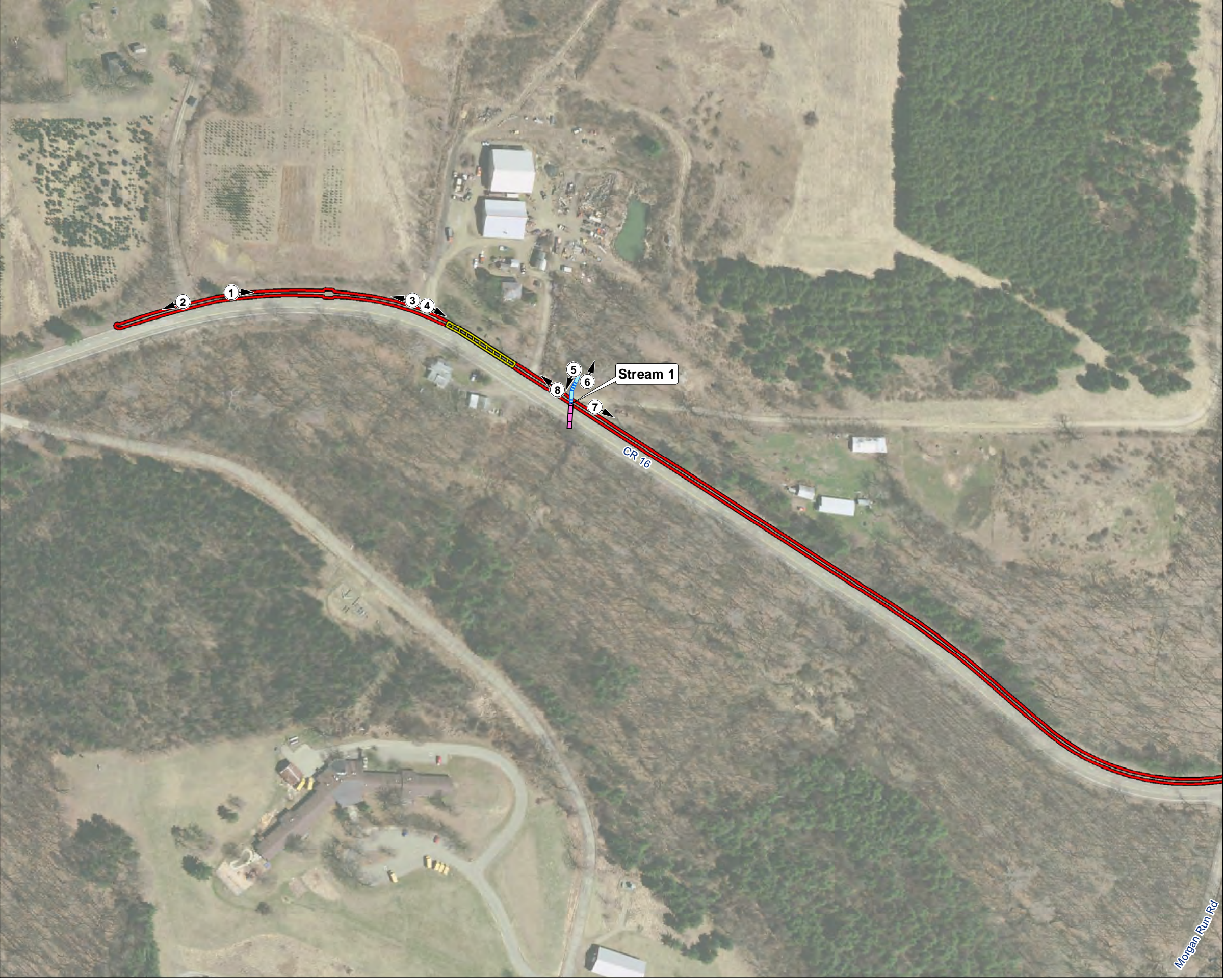
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Aerial photograph 2014








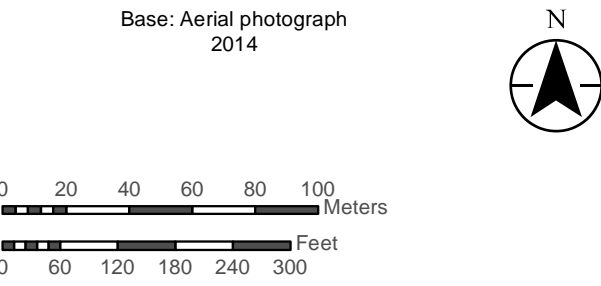
**Figure 4** **Sheet 4 of 4**

Portion of the National Wetland Inventory (NWI) map (USFWS 2019) showing the West Lafayette Waterline Extension and Replacement Project study areas (4 Sheets).





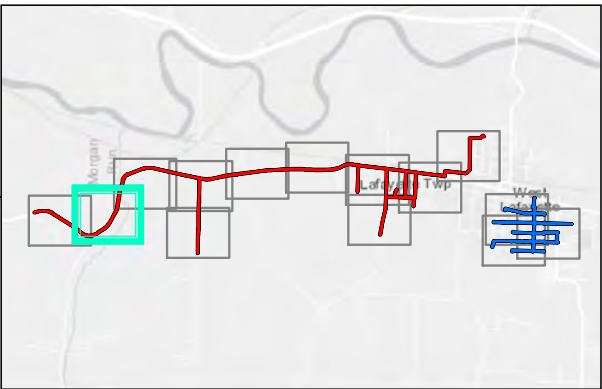
-  Waterline Extension Project study area
-  Directional boring location
-  Stream
-  Stream (piped)
-  Photograph location



**Figure 5** **Sheet 1 of 14**

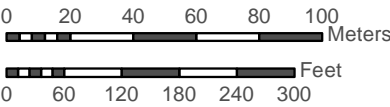
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





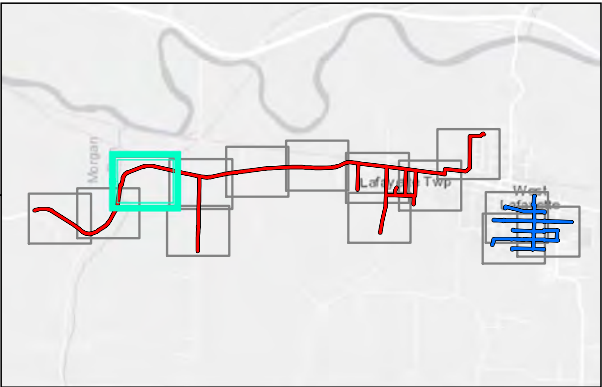
- Waterline Extension Project study area
- Directional boring location
- Stream
- Stream (piped)
- Sample point
- Photograph location







Base: Aerial photograph  
2014



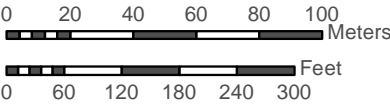
**Figure 5** **Sheet 2 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





-  Waterline Extension Project study area
-  Directional boring location
-  Stream
-  Stream (piped)
-  Sample point
-  Photograph location

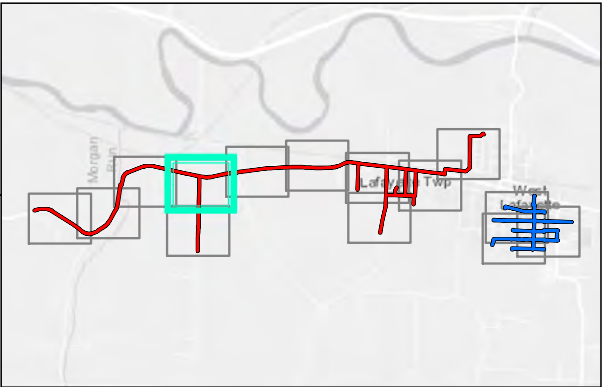
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2014



**Figure 5** **Sheet 3 of 14**

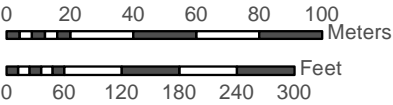
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





- Waterline Extension Project study area
- Directional boring location
- Wetland
- Pond
- Stream
- Stream (piped)
- Sample point
- Photograph location

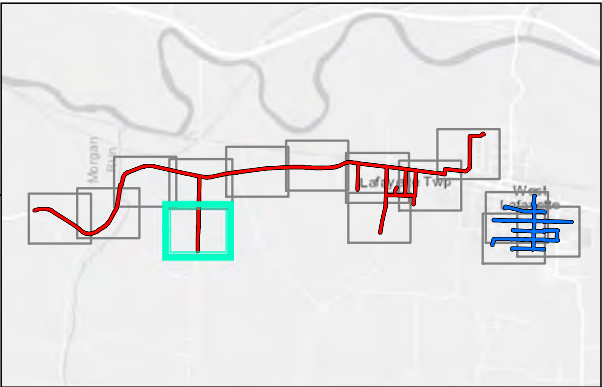
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2014



**Figure 5** **Sheet 4 of 14**

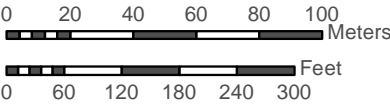
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





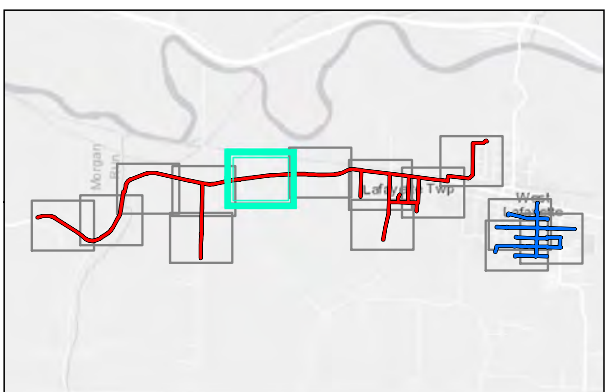
- Waterline Extension Project study area
- Directional boring location
- Wetland
- Stream
- Stream (piped)
- Sample point
- Photograph location








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2014



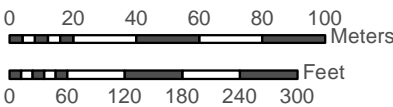
**Figure 5** **Sheet 5 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





-  Waterline Extension Project study area
-  Directional boring location
-  Wetland
-  Stream
-  Stream (piped)
-  Sample point
-  Photograph location

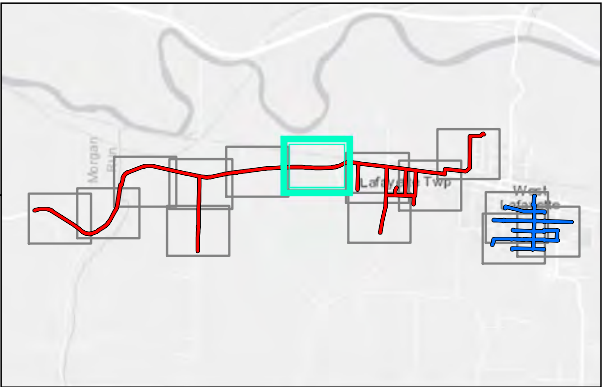
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





**Figure 5** **Sheet 6 of 14**

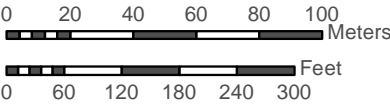
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





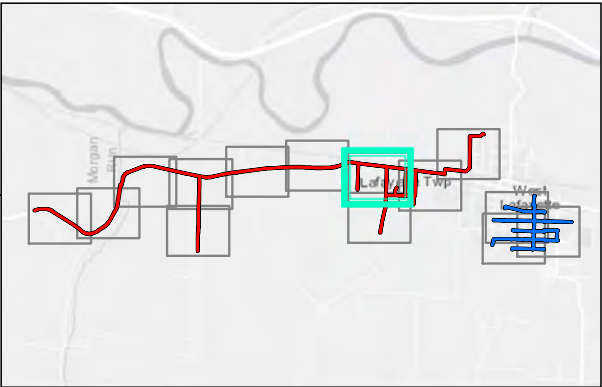
-  Waterline Extension Project study area
-  Directional boring location
-  Stream
-  Stream (piped)
-  Photograph location

Base: Aerial photograph  
2014



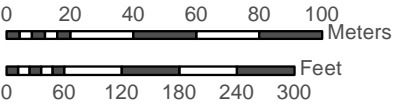
**Figure 5** **Sheet 7 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





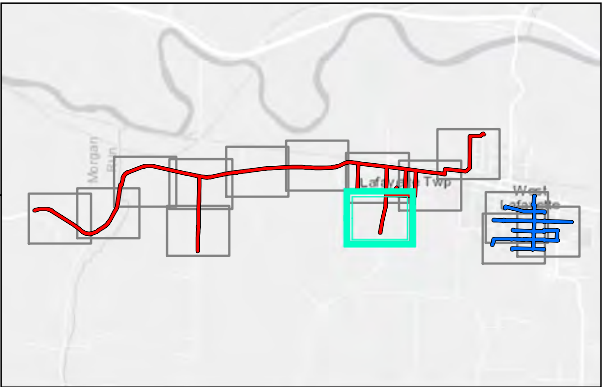
- Waterline Extension Project study area
- Directional boring location
- Photograph location






Base: Aerial photograph  
2014



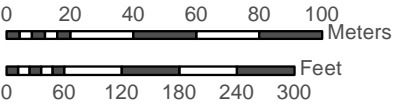
**Figure 5** **Sheet 8 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





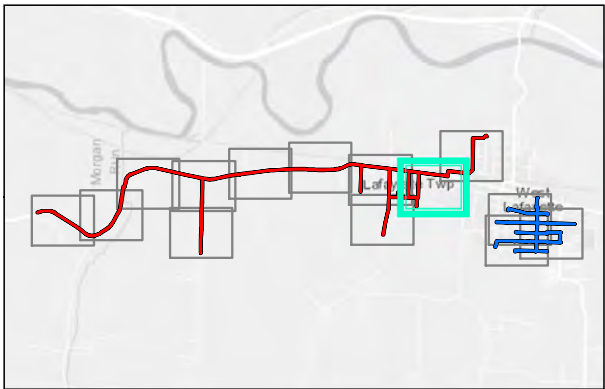
-  Waterline Extension Project study area
-  Directional boring location
-  Stream
-  Stream (piped)
-  Photograph location

Base: Aerial photograph  
2014



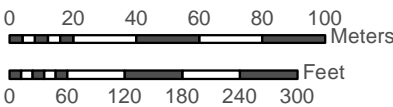
**Figure 5** **Sheet 9 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





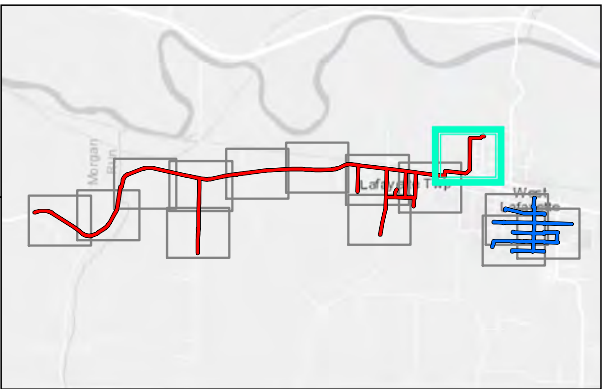
- Waterline Extension Project study area
- Directional boring location
- Photograph location




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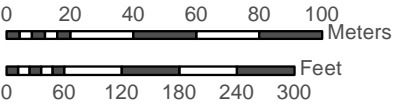
**Figure 5** **Sheet 10 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





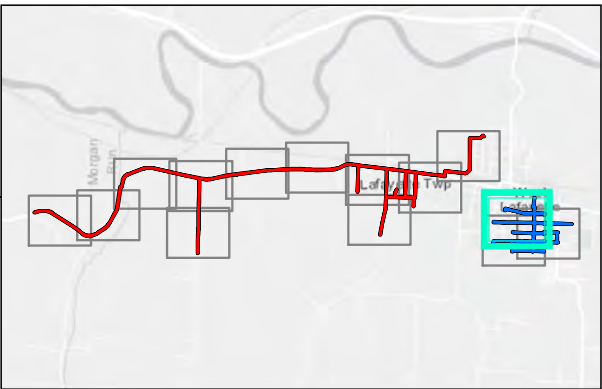
-  Waterline Extension Project study area
-  Directional boring location
-  Photograph location

Base: Aerial photograph  
2014



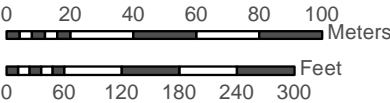
**Figure 5** **Sheet 11 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





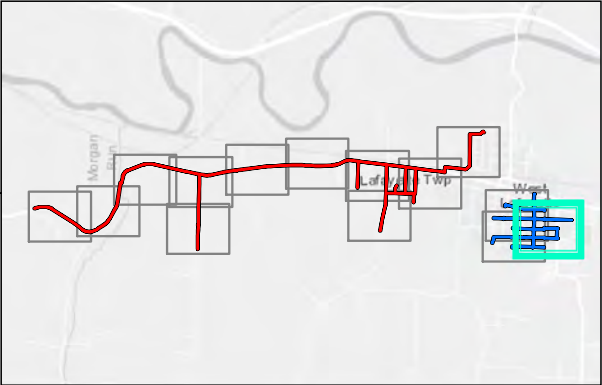
- Waterline Replacement Project study area
- Directional boring location
- Photograph location




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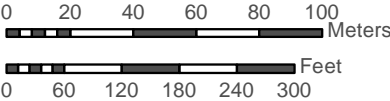
**Figure 5** **Sheet 12 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





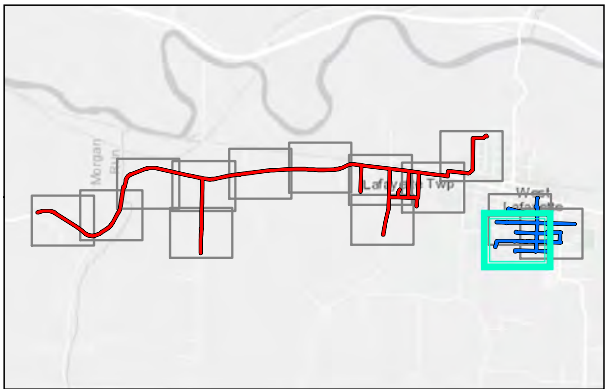
-  Waterline Replacement Project study area
-  Directional boring location
-  Photograph location

Base: Aerial photograph  
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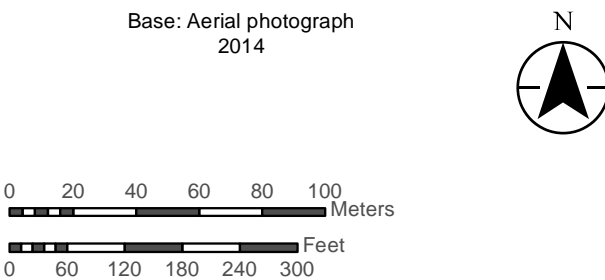


**Figure 5** **Sheet 13 of 14**  
Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).





- Waterline Replacement Project study area
- Directional boring location
- Photograph location



**Figure 5** **Sheet 14 of 14**

Aerial photograph showing ecological resources and photograph locations for the West Lafayette Waterline Extension and Replacement Project study areas (14 Sheets).



## **APPENDIX B: PROJECT STUDY AREA PHOTOGRAPHS**



Photograph 1. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 3. View of the West Lafayette Waterline Extension project study area, looking northwest.



Photograph 2. View of the West Lafayette Waterline Extension project study area, looking southwest.



Photograph 4. View of the West Lafayette Waterline Extension project study area, looking southeast.





Photograph 5. View of Stream 1, looking southwest.



Photograph 7. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 6. View of Stream 1, looking northeast.



Photograph 8. View of the West Lafayette Waterline Extension project study area, looking northwest.





Photograph 9. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 11. View of Stream 2, looking northwest.



Photograph 10. View along the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 12. View of Stream 2, looking southeast.





Photograph 13. View of Stream 2, looking northwest.



Photograph 15. View of Stream 3, looking southeast.



Photograph 14. View of the West Lafayette Waterline Extension project study area, looking southwest.



Photograph 16. View of Stream 3 captured in the roadway ditch, looking southwest.





Photograph 17. View of Stream 3 captured in the roadway ditch, looking northeast.



Photograph 19. View of a ditch in the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 18. View of Stream 3 where flow is directed under CR 16, looking northeast.



Photograph 20. View of a ditch in the West Lafayette Waterline Extension project study area, looking southwest.





Photograph 21. View of the project study area near SP 1, looking northeast.



Photograph 23. View of Stream 4, looking northwest.



Photograph 22. View of a ditch adjacent to the project study area, looking southwest.



Photograph 24. View of Stream 4, looking southeast.





Photograph 25. View of a ditch in the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 27. View of the project study area near SP 2, looking southeast.



Photograph 26. View of a ditch in the West Lafayette Waterline Extension project study area, looking southwest.



Photograph 28. View of a ditch in the West Lafayette Waterline Extension project study area, looking northeast.





Photograph 29. View of an off-site culvert discharging into the ditch in the project study area, looking southeast.



Photograph 31. View of the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 30. View of the West Lafayette Waterline Extension project study area, looking southwest.



Photograph 32. View of the West Lafayette Waterline Extension project study area, looking west.





Photograph 33. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 35. View of a culvert inlet within the project study area, looking north.



Photograph 34. View of the West Lafayette Waterline Extension project study area, looking northwest.



Photograph 36. View of an off-site culvert outlet location, looking north.





Photograph 37. View of off-site culvert outlet location, looking southwest.



Photograph 39. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 38. View of the West Lafayette Waterline Extension project study area, looking northwest.



Photograph 40. View of the West Lafayette Waterline Extension project study area, looking northwest.





Photograph 41. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 43. View of a pond and potential wetland fringe, looking west.



Photograph 42. View of a pond adjacent to the project study area, looking southeast.



Photograph 44. View of the West Lafayette Waterline Extension project study area, looking northwest.





Photograph 45. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 47. View of Wetland 1, looking north.



Photograph 46. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 48. View of Wetland 1, looking west.





Photograph 49. View of Wetland 1 outside of the project study area, looking northeast.



Photograph 51. View of Stream 5, looking west.



Photograph 50. View of Wetland 1, looking northeast.



Photograph 52. View of Stream 5, looking southwest.





Photograph 53. View of Stream 5, looking northeast.



Photograph 55. View of Stream 5 crossing under TR 162, looking east.



Photograph 54. View of Stream 5 near a seepage area outside of the project study area, looking north.



Photograph 56. View of the West Lafayette Waterline Extension project study area, looking south.





Photograph 57. View of the West Lafayette Waterline Extension project study area, looking north.



Photograph 59. View of Stream 6-1, looking northeast.



Photograph 58. View of the project study area near SP 5, looking southeast.



Photograph 60. View of Stream 6-1, looking southwest.





Photograph 61. View of Stream 6-1, looking southwest.



Photograph 63. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 62. View of the West Lafayette Waterline Extension project study area and Stream 6-1, looking north.



Photograph 64. View of Stream 7, looking southeast.





Photograph 65. View of Stream 7 and Wetland 2, looking northwest.



Photograph 67. View of Wetland 2, looking northeast.



Photograph 66. View of Stream 7 and Wetland 2, looking northwest.



Photograph 68. View of Stream 7 captured in the roadway ditch outside of the project study area, looking south.





Photograph 69. View of Stream 7 captured in the roadway ditch outside of the project study area, looking north.



Photograph 71. View of Stream 8 (pipe outlet), looking southeast.



Photograph 70. View of Stream 7 off-site, looking west.



Photograph 72. View of Stream 8 captured in the roadway ditch, looking northwest.





Photograph 73. View of Stream 8 captured in the roadway ditch, looking south.



Photograph 75. View of Stream 8 outside of the project study area, looking northwest.



Photograph 74. View of distant piping outside of the project study area, looking east.



Photograph 76. View of the West Lafayette Waterline Extension project study area, looking north.





Photograph 77. View of Stream 9, looking east.



Photograph 79. View of Stream 9, looking northwest.



Photograph 78. View of Stream 9, looking southeast.



Photograph 80. View of the West Lafayette Waterline Extension project study area, looking south.





Photograph 81. View of the West Lafayette Waterline Extension project study area, looking north.



Photograph 83. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 82. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 84. View of the West Lafayette Waterline Extension project study area, looking east.





Photograph 85. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 87. View of Stream 6-2 along the edge of the project study area, looking east.



Photograph 86. View of Stream 6-2 along the edge of the project study area, looking west.



Photograph 88. View of Stream 6-2 just outside of the project study area, looking southeast.





Photograph 89. View of Stream 6-2, looking northwest.



Photograph 91. View of Stream 6-2 outside of the project study area, looking northwest.



Photograph 90. View of Stream 6-2, looking southeast.



Photograph 92. View of Stream 10, looking northwest.





Photograph 93. View of Stream 10, looking southeast.



Photograph 95. View of Wetland 3, looking southwest.



Photograph 94. View of Wetland 3, looking southwest.



Photograph 96. View of Wetland 3 along the edge of the project study area, looking northeast.





Photograph 97. View of Wetland 3, looking southwest.



Photograph 99. View of the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 98. View of the project study area near SP 10, looking southeast.



Photograph 100. View of the West Lafayette Waterline Extension project study area, looking northeast.





Photograph 101. View of the West Lafayette Waterline Extension project study area, looking southwest.



Photograph 103. View of Wetland 4 adjacent to the project study area, looking northeast.



Photograph 102. View of Wetland 4 adjacent to the project study area, looking west.



Photograph 104. View of the West Lafayette Waterline Extension project study area, looking southwest.





Photograph 105. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 107. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 106. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 108. View of the West Lafayette Waterline Extension project study area, looking east.





Photograph 109. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 111. View of Stream 11, looking southwest.



Photograph 110. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 112. View of Stream 11, looking northeast.





Photograph 113. View of Stream 11 outside of the project study area, looking east.



Photograph 115. View of the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 114. View of the West Lafayette Waterline Extension project study area, looking north-northeast.



Photograph 116. View of the West Lafayette Waterline Extension project study area, looking west.





Photograph 117. View of the West Lafayette Waterline Extension project study area, looking northwest.



Photograph 119. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 118. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 120. View of the West Lafayette Waterline Extension project study area, looking north.





Photograph 121. View of the West Lafayette Waterline Extension project study area, looking northwest.



Photograph 123. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 122. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 124. View of the West Lafayette Waterline Extension project study area, looking north.





Photograph 125. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 127. View of the West Lafayette Waterline Extension project study area, looking southwest.



Photograph 126. View of the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 128. View of the West Lafayette Waterline Extension project study area, looking northeast.





Photograph 129. View of Stream 12 just outside of the project study area, looking west.



Photograph 131. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 130. View of Stream 12 just outside of the project study area, looking northeast.



Photograph 132. View of the West Lafayette Waterline Extension project study area, looking north.





Photograph 133. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 135. View of the West Lafayette Waterline Extension project study area, looking north.



Photograph 134. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 136. View of the West Lafayette Waterline Extension project study area, looking northwest.





Photograph 137. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 139. View of the West Lafayette Waterline Extension project study area, looking northwest.



Photograph 138. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 140. View of the West Lafayette Waterline Extension project study area, looking southeast.





Photograph 141. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 143. View of the West Lafayette Waterline Extension project study area, looking north.



Photograph 142. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 144. View of the West Lafayette Waterline Extension project study area, looking north.





Photograph 145. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 147. View of the West Lafayette Waterline Extension project study area, looking north.



Photograph 146. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 148. View of the West Lafayette Waterline Extension project study area, looking south.





Photograph 149. View of the West Lafayette Waterline Extension project study area, looking southeast.



Photograph 151. View of the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 150. View of the West Lafayette Waterline Extension project study area, looking northwest.



Photograph 152. View of the West Lafayette Waterline Extension project study area, looking south.





Photograph 153. View of the West Lafayette Waterline Extension project study area, looking north.



Photograph 155. View of the West Lafayette Waterline Extension project study area, looking north.



Photograph 154. View of the West Lafayette Waterline Extension project study area, looking south.



Photograph 156. View of the West Lafayette Waterline Extension project study area, looking south.





Photograph 157. View of the West Lafayette Waterline Extension project study area, looking east.



Photograph 159. View of the West Lafayette Waterline Extension project study area, looking west.



Photograph 158. View of the West Lafayette Waterline Extension project study area, looking northeast.



Photograph 160. View of the West Lafayette Waterline Replacement project study area, looking south.





Photograph 161. View of the West Lafayette Waterline Replacement project study area, looking southeast.



Photograph 163. View of the West Lafayette Waterline Replacement project study area, looking east.



Photograph 162. View of the West Lafayette Waterline Replacement project study area, looking west.



Photograph 164. View of the West Lafayette Waterline Replacement project study area, looking southeast.





Photograph 165. View of the West Lafayette Waterline Replacement project study area, looking west.



Photograph 167. View of the West Lafayette Waterline Replacement project study area, looking east.



Photograph 166. View of the West Lafayette Waterline Replacement project study area, looking east.



Photograph 168. View of the West Lafayette Waterline Replacement project study area, looking west.





Photograph 169. View of the West Lafayette Waterline Replacement project study area, looking south.



Photograph 171. View of the West Lafayette Waterline Replacement project study area, looking east.



Photograph 170. View of the West Lafayette Waterline Replacement project study area, looking north.



Photograph 172. View of the West Lafayette Waterline Replacement project study area, looking south.





Photograph 173. View of the West Lafayette Waterline Replacement project study area, looking east.



Photograph 175. View of the West Lafayette Waterline Replacement project study area, looking west.



Photograph 174. View of the West Lafayette Waterline Replacement project study area, looking east.



Photograph 176. View of the West Lafayette Waterline Replacement project study area, looking west.





Photograph 177. View of the West Lafayette Waterline Replacement project study area, looking north.



Photograph 179. View of the West Lafayette Waterline Replacement project study area, looking east.



Photograph 178. View of the West Lafayette Waterline Replacement project study area, looking west.



Photograph 180. View of the West Lafayette Waterline Replacement project study area, looking south.



## **APPENDIX C: WETLAND DETERMINATION FORMS**



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 1

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

Landform (hillslope, terrace, etc.): Embankment Local relief (concave, convex, none): Convex Slope (%): 6

Subregion (LRR or MLRA): LRR N Lat: 40.276011146 Long: -81.8070601401 Datum: WGS 1984

Soil Map Unit Name: Tk – Tioga fine sandy loam, occasionally flooded NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	No	X	Is the Sampled Area			
Hydric Soils Present?	Yes	No	X	Within a Wetland?	Yes	No	X
Wetland Hydrology Present?	Yes	No	X	General Out Point Documenting Existing Conditions			
Remarks: This area does not satisfy any of the three criteria needed for a positive wetland determination. This area is not a wetland.							

## HYDROLOGY

Wetland Hydrology Indicators:				
Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)	
Surface Water(A1)	True Aquatic Plants (B14)		Surface Soil Cracks (B6)	
High Water Table (A2)	Hydrogen Sulfide Odor (C1)		Sparsely Vegetated Concave Surface (B8)	
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)		Drainage Patterns (B10)	
Water Marks (B1)	Presence of Reduced Iron (C4)		Moss Trim Lines (B16)	
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)		Dry-Season Water Table (C2)	
Drift Deposits (B3)	Thin Muck Surface (C7)		Crayfish Burrows (C8)	
Algal Mat or Crust (B4)	Other (Explain in Remarks)		Saturation Visible on Aerial Imagery (C9)	
Iron Deposits (B5)			Stunted or Stressed Plants (D1)	
Inundation Visible on Aerial Imagery (B7)			Geomorphic Position (D2)	
Water Stained Leaves (B9)			Shallow Aquitard (D3)	
Aquatic Fauna (B13)			Microtopographic Relief (D4)	
			FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Water Table Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)			<b>Wetland Hydrology Present?</b> Yes No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: Wetland hydrology Indicators were not observed at this location. This observation does not satisfy the hydrology criterion.				



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

Sampling Point: 1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 3 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 33% (A/B)
1. <i>Acer negundo</i>	25	Yes	FAC	
2.				
3.				
4.				
5.	25	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species 25 × 3 = 75 FACU Species 50 × 4 = 200 UPL Species × 5 =  Column Totals: 75 (A) 275 (B)  Prevalence Index = B/A = 3.6
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1.				
2.				
3.				
4.				<b>Hydrophytic Vegetation Indicators:</b> 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)
5.				
6.				
7.				
8.				
<b>Herb Stratum</b> (Plot size: 5 ft )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Alliaria petiolata</i>	35	Yes	FACU	
2. <i>Allium vineale</i>	15	Yes	FACU	
3.				
4.				
5.				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
6.				
7.				
8.				
9.				
10.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
11.				
50	= Total Cover			
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				
1.				
2.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
3.				
4.				
5.				
6.				
7.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
8.				
9.				
10.				
= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)  
  
 The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy Hydrophytic Vegetation criterion.



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-2	10YR 3/2	100					Loamy	
2-18	10YR 5/2	100					Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)			Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )				<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      No      X	
Remarks: The soils in this area do not correspond to any of the Hydric Soils Indicators presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation does not satisfy the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 2

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

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

Subregion (LRR or MLRA): LRR N Lat: 40.2770458916 Long: -81.806549828 Datum: WGS 1984

Soil Map Unit Name: Tk – Tioga fine sandy loam, occasionally flooded NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<b>Is the Sampled Area</b> <b>Within a Wetland?</b> Yes No <input checked="" type="checkbox"/> <b>General Out Point Documenting Existing Conditions</b>
Hydric Soils Present?	Yes		No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes	<input checked="" type="checkbox"/>	No	
<b>Remarks:</b> This area is located in a mowed lawn adjacent to CR 16 and a roadside ditch. This area satisfies two of the three criteria needed for a positive wetland determination. This area is not a wetland.				

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
<input checked="" type="checkbox"/> Surface Water(A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)				True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)			
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 0.5 Water Table Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
<b>Remarks:</b> There is a culvert from the adjacent residential property discharging at this location. Wetland hydrology Indicators were observed at this location. This observation satisfies the hydrology criterion.							



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

 Sampling Point: **2**

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status		
1.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 3 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)	
2.					
3.					
4.					
5.					
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species × 3 = FACU Species 80 × 4 = 320 UPL Species 20 × 5 = 100 Column Totals: 100 (A) 420 (B)  Prevalence Index = B/A = 4.2	
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )					
1.					
2.					
3.					
= Total Cover				<b>Hydrophytic Vegetation Indicators:</b> 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.	
<b>Herb Stratum</b> (Plot size: 5 ft )					
1.	<i>Glechoma hederacea</i>	50	Yes		FACU
2.	<i>Poa pratensis</i>	30	Yes		FACU
3.	<i>Lamium purpureum</i>	20	Yes		UPL
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
100 = Total Cover				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: 30 ft )					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
= Total Cover				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>	

Remarks: (Include photo numbers here or on a separate sheet.)  
  
 The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy Hydrophytic Vegetation criterion.



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-2	10YR 3/2	95	10YR 4/6	5	C	M	Loamy	
2-18	10YR 5/2	95	10YR 4/6	5	C	M	Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      X      No	
<b>Remarks:</b> The soils in this area correspond to the Depleted Matrix (F3) Hydric Soils Indicator presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation satisfies the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 3

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

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

Subregion (LRR or MLRA): LRR N Lat: 40.2770458916 Long: -81.7956584775 Datum: WGS 1984

Soil Map Unit Name: CfB – Chili loam, 2 to 6 percent slopes NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<b>Is the Sampled Area</b> <b>Within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <b>Wetland 1</b>
Hydric Soils Present?	Yes	<input checked="" type="checkbox"/>	No	
Wetland Hydrology Present?	Yes	<input checked="" type="checkbox"/>	No	
<b>Remarks:</b> This area is disturbed from an ATV or machinery being driven through this area. Acid Mine Drainage was observed just beyond the sample point area. This area satisfies the three criteria needed for a positive wetland determination. This area is a wetland.				

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
<input checked="" type="checkbox"/> Surface Water(A1) High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)	<input checked="" type="checkbox"/> True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)			<input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 1 Water Table Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
<b>Remarks:</b> Wetland hydrology Indicators were observed at this location. This observation satisfies the hydrology criterion.							



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

 Sampling Point: **3**

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>	
1. <i>Celtis occidentalis</i>	10	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC:	2 (A)
2.				Total Number of Dominant Species Across All Strata:	3 (B)
3.				Percent of Dominant Species That are OBL, FACW, or FAC:	66% (A/B)
4.					
5.	10	= Total Cover			
<b>Sapling/Shrub Stratum (Plot size: 15 ft )</b>					
1.					
2.					
3.					
4.					
5.		= Total Cover			
<b>Herb Stratum (Plot size: 5 ft )</b>					
1. <i>Agrostis stolonifera</i>	15	Yes	FACW		
2. <i>Onoclea sensibilis</i>	15	Yes	FACW		
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
	30	= Total Cover			
<b>Woody Vine Stratum (Plot size: 30 ft )</b>					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
		= Total Cover			
				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species 30 × 2 = 60 FAC Species × 3 = FACU Species 10 × 4 = 40 UPL Species × 5 = Column Totals: 40 (A) 100 (B) Prevalence Index = B/A = 2.5	
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50% X 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.	
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>X</b> <b>No</b>	
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent and the Prevalence Index is less than 3.0. These observations satisfy the Hydrophytic Vegetation criterion.					



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-18	10YR 4/1	95	10YR 3/6	5	C	M	Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      X      No	
Remarks: The soils in this area correspond to the Depleted Matrix (F3) Hydric Soils Indicator presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation satisfies the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 4

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

Landform (hillslope, terrace, etc.): Embankment Local relief (concave, convex, none): Convex Slope (%): 6

Subregion (LRR or MLRA): LRR N Lat: 40.2749362168 Long: -81.7957330103 Datum: WGS 1984

Soil Map Unit Name: Cfb – Chili loam, 2 to 6 percent slopes NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	No	X	Is the Sampled Area		
Hydric Soils Present?	Yes	No	X	Within a Wetland?	Yes	No X
Wetland Hydrology Present?	Yes	No	X	Out Point for Wetland 1		
Remarks: This area does not satisfy any of the three criteria needed for a positive wetland determination. This area is not a wetland.						

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
Surface Water(A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present?      Yes      No <input checked="" type="checkbox"/> Depth (inches): Water Table Present?      Yes      No <input checked="" type="checkbox"/> Depth (inches): Saturation Present?      Yes      No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes                      No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:  Wetland hydrology Indicators were not observed at this location. This observation does not satisfy the hydrology criterion.			



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

 Sampling Point: **4**

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status		
1.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 3 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)	
2.					
3.					
4.					
5.					
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species × 3 = FACU Species 40 × 4 = 160 UPL Species 10 × 5 = 50 Column Totals: 50 (A) 210 (B)  Prevalence Index = B/A = 4.2	
<b>Sapling/Shrub Stratum (Plot size: 15 ft )</b> size:					
1.					
2.					
3.					
4.				<b>Hydrophytic Vegetation Indicators:</b> 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.	
5.					
= Total Cover					
<b>Herb Stratum (Plot size: 5 ft )</b>					
1.	<i>Alliaria petiolata</i>	20	Yes		FACU
2.	<i>Glechoma hederacea</i>	20	Yes		FACU
3.	<i>Duchesnea indica</i>	10	Yes		UPL
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
50 = Total Cover				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum (Plot size: 30 ft )</b>					
1.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
= Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)  
  
 The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy Hydrophytic Vegetation criterion.



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features									
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks				
0-7	10YR 3/3	100					Loamy					
>7	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )					
							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)					
Restrictive Layer (if observed): Type: Rock/Fill Depth (inches): 7							<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the Hydric Soils Indicators presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation does not satisfy the soils criterion.												



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020  
Applicant/Owner: City of Coshocton State: OH Sampling Point: 5  
Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W  
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2  
Subregion (LRR or MLRA): LRR N Lat: 40.2738732517 Long: -81.7957721699 Datum: WGS 1984  
Soil Map Unit Name: Or – Orrville silt loam, 0 to 3 percent slopes, occasionally flooded NWI Classification: N/A  
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No (If no, explain in Remarks.)  
Are vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No  
Are vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No	<input checked="" type="checkbox"/>	<b>Is the Sampled Area</b>  <b>Within a Wetland?</b> Yes No <input checked="" type="checkbox"/> <b>General Out Point Documenting Existing Conditions</b>
Hydric Soils Present?	Yes	<input checked="" type="checkbox"/>	No	
Wetland Hydrology Present?	Yes	No	<input checked="" type="checkbox"/>	
<b>Remarks:</b> This area satisfies one of the three criteria needed for a positive wetland determination. This area is not a wetland.				

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
Surface Water(A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)				True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)			
<b>Field Observations:</b> Surface Water Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Water Table Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)				Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)			
<b>Wetland Hydrology Present?</b> Yes No <input checked="" type="checkbox"/>							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
<b>Remarks:</b> Sufficient wetland hydrology Indicators were not observed at this location. This observation does not satisfy the hydrology criterion.							



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

 Sampling Point: **5**

Tree Stratum (Plot size: 30 ft )		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)  Total Number of Dominant Species Across All Strata: 5 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 40% (A/B)
1. <i>Acer negundo</i>		10	Yes	FAC	
2.					
3.					
4.					
5.					
Sapling/Shrub Stratum (Plot size: 15 ft )		10	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species 30 × 3 = 90 FACU Species 50 × 4 = 200 UPL Species 10 × 5 = 50 Column Totals: 90 (A) 340 (B)  Prevalence Index = B/A = 3.7
1. <i>Rosa multiflora</i>		30	Yes	FACU	
2. <i>Rubus occidentalis</i>		10	Yes	UPL	
3.					
4.					
5.					
Herb Stratum (Plot size: 5 ft )		40	= Total Cover		<b>Hydrophytic Vegetation Indicators:</b> 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.
1. <i>Verbesina alternifolia</i>		20	Yes	FAC	
2. <i>Allium vineale</i>		15	Yes	FACU	
3. <i>Asclepias syriaca</i>		5	No	FACU	
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
Woody Vine Stratum (Plot size: 30 ft )		40	= Total Cover		<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
					<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>

Remarks: (Include photo numbers here or on a separate sheet.)  
  
 The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy Hydrophytic Vegetation criterion.



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 4/2	95	10YR 3/6	5	C	M	Loamy	
4-18	10YR 4/4	100					Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      X      No	
<b>Remarks:</b> The soils in this area correspond to the Depleted Matrix (F3) Hydric Soils Indicator presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation satisfies the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 6

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

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

Subregion (LRR or MLRA): LRR N Lat: 40.2724234997 Long: -81.7957975628 Datum: WGS 1984

Soil Map Unit Name: MnC – Mentor silt loam, 6 to 15 percent slopes NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	X	No	Is the Sampled Area			
Hydric Soils Present?	Yes	X	No	Within a Wetland?	Yes	X	No
Wetland Hydrology Present?	Yes	X	No	Wetland 2			
Remarks: This area satisfies the three criteria needed for a positive wetland determination. This area is a wetland.							

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water(A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water Stained Leaves (B9) Aquatic Fauna (B13)	<input checked="" type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 1 Water Table Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 0 Saturation Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Wetland hydrology Indicators were observed at this location. This observation satisfies the hydrology criterion.			



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

 Sampling Point: **6**

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	
1.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)
2.				
3.				
4.				
5.				
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species 20 × 3 = 60 FACU Species × 4 = UPL Species × 5 =  Column Totals: 20 (A) 60 (B)  Prevalence Index = B/A = 3.0
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1. <i>Sambucus nigra</i>	10	Yes	FAC	
2.				
3.				
= Total Cover				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation <b>X</b> 2 - Dominance Test is > 50% <b>X</b> 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.
<b>Herb Stratum</b> (Plot size: 5 ft )				
1. <i>Ranunculus hispidus</i>	10	Yes	FAC	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
= Total Cover				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>X</b> <b>No</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent and the Prevalence Index is equal to 3.0. These observations satisfy the Hydrophytic Vegetation criterion.				



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-18	10YR 2/1	100					Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> <b>X</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) <b>X</b> Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)			Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )				<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes <b>X</b> No	
Remarks: The soils in this area correspond to the Histosol (A1) and Hydrogen Sulfide (A4) Hydric Soils Indicators as presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation satisfies the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 7

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 40.2723864327 Long: -81.7957597498 Datum: WGS 1984

Soil Map Unit Name: MnC – Mentor silt loam, 6 to 15 percent slopes NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	No	X	Is the Sampled Area		
Hydric Soils Present?	Yes	No	X	Within a Wetland?	Yes	No X
Wetland Hydrology Present?	Yes	No	X	Out Point for Wetland 2		
Remarks: This area does not satisfy any of the three criteria needed for a positive wetland determination. This area is not a wetland.						

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
Surface Water(A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Water Table Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:  Wetland hydrology Indicators were not observed at this location. This observation does not satisfy the hydrology criterion.			



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

Sampling Point: 7

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Fagus grandifolia</i>	20	Yes	FACU	<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)
2.				
3.				
4.				
5.				
Sapling/Shrub Stratum (Plot size: 15 ft )	20	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species × 3 = FACU Species 85 × 4 = 340 UPL Species × 5 =  Column Totals: 85 (A) 340 (B)  Prevalence Index = B/A = 4.0
1.				
2.				
3.				
4.				
Herb Stratum (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 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.
1. <i>Polystichum acrostichoides</i>	65	Yes	FACU	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
Woody Vine Stratum (Plot size: 30 ft )	65	= Total Cover		<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes                  No                  X
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
				<b>Remarks:</b> (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy Hydrophytic Vegetation criterion.



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-18	10YR 5/8	100					Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)			Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      No      X	
Remarks: The soils in this area do not correspond to any of the Hydric Soils Indicators presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation does not satisfy the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 8

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

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

Subregion (LRR or MLRA): LRR N Lat: 40.2775828353 Long: -81.7899742995 Datum: WGS 1984

Soil Map Unit Name: Or – Orrville silt loam, 0 to 3 percent slopes, occasionally flooded NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<b>Is the Sampled Area</b> <b>Within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <b>Wetland 3</b>
Hydric Soils Present?	Yes	<input checked="" type="checkbox"/>	No	
Wetland Hydrology Present?	Yes	<input checked="" type="checkbox"/>	No	
<b>Remarks:</b> This area satisfies the three criteria needed for a positive wetland determination. This area is a wetland.				

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
<input checked="" type="checkbox"/> Surface Water(A1) High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)	<input checked="" type="checkbox"/> True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 2 Water Table Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes <input checked="" type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
<b>Remarks:</b> Wetland hydrology Indicators were observed at this location. This observation satisfies the hydrology criterion.							



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

 Sampling Point: **8**

Tree Stratum (Plot size: 30 ft )		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b> 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)
1.					
2.					
3.					
4.					
5.					= Total Cover
Sapling/Shrub Stratum (Plot size: 15 ft )					<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species 110 × 2 = 220 FAC Species × 3 = FACU Species × 4 = UPL Species × 5 =  Column Totals: 110 (A) 220 (B)  Prevalence Index = B/A = 2.0
1.	<i>Cornus amomum</i>	10	Yes	FACW	
2.					
3.					
4.					
5.		10			= Total Cover
Herb Stratum (Plot size: 5 ft )					<b>Hydrophytic Vegetation Indicators:</b> <b>X</b> 1 - Rapid Test for Hydrophytic Vegetation <b>X</b> 2 - Dominance Test is > 50% <b>X</b> 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.
1.	<i>Phalaris arundinacea</i>	90	Yes	FACW	
2.	<i>Onoclea sensibilis</i>	10	Yes	FACW	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
Woody Vine Stratum (Plot size: 30 ft )		100			<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes X No
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
					= Total Cover

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

The Dominance Test is greater than 50 percent and the Prevalence Index is less than 3.0. The vegetation also satisfies the Rapid Test for Hydrophytic Vegetation. These observations satisfy the Hydrophytic Vegetation criterion.



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-18	10YR 4/1	95	10YR 3/6	5	C	M	Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      X      No	
Remarks: The soils in this area correspond to the Depleted Matrix (F3) Hydric Soils Indicator presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation satisfies the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020

Applicant/Owner: City of Coshocton State: OH Sampling Point: 9

Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W

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

Subregion (LRR or MLRA): LRR N Lat: 40.2775330374 Long: -81.7902341985 Datum: WGS 1984

Soil Map Unit Name: Or – Orrville silt loam, 0 to 3 percent slopes, occasionally flooded NWI Classification: N/A

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

Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No

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

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

Hydrophytic Vegetation Present?	Yes	No	X	Is the Sampled Area		
Hydric Soils Present?	Yes	No	X	Within a Wetland?	Yes	No X
Wetland Hydrology Present?	Yes	No	X	Out Point for Wetland 3		
Remarks: This area does not satisfy any of the three criteria needed for a positive wetland determination. This area is not a wetland.						

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
Surface Water(A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Water Table Present? Yes No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
<b>Remarks:</b> Wetland hydrology Indicators were not observed at this location. This observation does not satisfy the hydrology criterion.			



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

 Sampling Point: **9**

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status		
1.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)	
2.					
3.					
4.					
5.					
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species × 3 = FACU Species 85 × 4 = 340 UPL Species 10 × 5 = 50 Column Totals: 95 (A) 390 (B)  Prevalence Index = B/A = 4.1	
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )					
1.					
2.					
3.					
= Total Cover				<b>Hydrophytic Vegetation Indicators:</b> 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.	
<b>Herb Stratum</b> (Plot size: 5 ft )					
1.	<i>Schedonorus arundinaceus</i>	85	Yes		FACU
2.	<i>Plantago lanceolata</i>	10	No		UPL
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
95 = Total Cover				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: 30 ft )					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
= Total Cover				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>	

Remarks: (Include photo numbers here or on a separate sheet.)  
  
 The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy Hydrophytic Vegetation criterion.



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)																
Depth	Matrix		Redox Features													
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks								
0-4	10YR 3/2	100					Loamy									
>4	IMPENETRABLE															
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.																
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )									
							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)									
Restrictive Layer (if observed): Type: Rock/Fill Depth (inches): 4							<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="1"> <thead> <tr> <th>Hydric Soil Present?</th> <th>Yes</th> <th>No</th> <th>X</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Hydric Soil Present?	Yes	No	X				
Hydric Soil Present?	Yes	No	X													
Remarks:  The soils in this area do not correspond to any of the Hydric Soils Indicators presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation does not satisfy the soils criterion.																



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020  
Applicant/Owner: City of Coshocton State: OH Sampling Point: 10  
Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W  
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2  
Subregion (LRR or MLRA): LRR N Lat: 40.2776397485 Long: -81.7896722269 Datum: WGS 1984  
Soil Map Unit Name: Or – Orrville silt loam, 0 to 3 percent slopes, occasionally flooded NWI Classification: N/A  
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No (If no, explain in Remarks.)  
Are vegetation ☒ Soil ☒ or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No  
Are vegetation ☒ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<b>Is the Sampled Area</b> <b>Within a Wetland?</b> Yes                      No <input checked="" type="checkbox"/> <b>General Out Point Documenting Existing Conditions</b>
Hydric Soils Present?	Yes		<input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes		<input checked="" type="checkbox"/>	
<b>Remarks:</b> This area satisfies one of the three criteria needed for a positive wetland determination. This area is not a wetland.				

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
Surface Water(A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)				True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)			
<b>Field Observations:</b> Surface Water Present?    Yes              No <input checked="" type="checkbox"/> Depth (inches): Water Table Present?       Yes              No <input checked="" type="checkbox"/> Depth (inches): Saturation Present?        Yes              No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes                      No <input checked="" type="checkbox"/>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
<b>Remarks:</b> Wetland hydrology Indicators were not observed at this location. This observation does not satisfy the hydrology criterion.							



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

 Sampling Point: **10**

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.				Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
2.				
3.				Total Number of Dominant Species Across All Strata: 5 (B)
4.				
5.				Percent of Dominant Species That are OBL, FACW, or FAC: 60% (A/B)
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15 ft )				
1. <i>Rubus occidentalis</i>	10	Yes	UPL	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species 50 × 2 = 100 FAC Species 20 × 3 = 60 FACU Species 20 × 4 = 80 UPL Species 10 × 5 = 50 Column Totals: 100 (A) 290 (B)  Prevalence Index = B/A = 2.9
2.				
3.				
4.				
5.				
= Total Cover				
Herb Stratum (Plot size: 5 ft )				
1. <i>Phalaris arundinacea</i>	30	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation <b>X</b> 2 - Dominance Test is > 50% <b>X</b> 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.
2. <i>Solidago canadensis</i>	20	Yes	FACU	
3. <i>Rudbeckia laciniata</i>	20	Yes	FACW	
4. <i>Verbesina alternifolia</i>	20	Yes	FAC	
5.				
6.				
7.				
8.				
9.				
10.				
11.				
= Total Cover				
Woody Vine Stratum (Plot size: 30 ft )				
1.				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>X</b> <b>No</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent and the Prevalence Index is less than 3.0. These observations satisfy the Hydrophytic Vegetation criterion.				



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-18	10YR 3/3	100					Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)			Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      No      X	
Remarks: The soils in this area do not correspond to any of the Hydric Soils Indicators presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation does not satisfy the soils criterion.								



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/Coshocton Sampling Dates: 1/27/2020  
 Applicant/Owner: City of Coshocton State: OH Sampling Point: 11  
 Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W  
 Landform (hillslope, terrace, etc.): Hillslope (lower slope) Local relief (concave, convex, none): Convex Slope (%): 15  
 Subregion (LRR or MLRA): LRR N Lat: 40.277868883 Long: -81.787274256 Datum: WGS 1984  
 Soil Map Unit Name: WaF – Watertown sandy loam, 25 to 70 percent slopes NWI Classification: N/A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes **X** No (If no, explain in Remarks.)  
 Are vegetation **N** Soil **N** or Hydrology **N** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No  
 Are vegetation **N** Soil **N** or Hydrology **N** 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	X	No	Is the Sampled Area			
Hydric Soils Present?	Yes	X	No	Within a Wetland?	Yes	X	No
Wetland Hydrology Present?	Yes	X	No	Wetland 4			
Remarks: This area satisfies the three criteria needed for a positive wetland determination. This area is a wetland.							

## HYDROLOGY

Wetland Hydrology Indicators:				
Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)	
<b>X</b> Surface Water(A1) High Water Table (A2) <b>X</b> Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)	<b>X</b> True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) <b>X</b> Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) <b>X</b> Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) <b>X</b> FAC-Neutral Test (D5)		
<b>Field Observations:</b> Surface Water Present? Yes No <b>X</b> Depth (inches): Water Table Present? Yes No <b>X</b> Depth (inches): Saturation Present? Yes <b>X</b> No Depth (inches): 0 (includes capillary fringe)			<b>Wetland Hydrology Present?</b> Yes <b>X</b> No	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: Wetland hydrology Indicators were observed at this location. This observation satisfies the hydrology criterion.				

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

Sampling Point: 11

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.				Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
2.				
3.				Total Number of Dominant Species Across All Strata: 1 (B)
4.				
5.				Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)
= Total Cover				
				<b>Prevalence Index Worksheet:</b>
Sapling/Shrub Stratum (Plot size: 15 ft )				Total % Cover of: Multiply by:
1.				OBL Species × 1 =
2.				FACW Species 100 × 2 = 200
3.				FAC Species × 3 =
4.				FACU Species × 4 =
5.				UPL Species × 5 =
= Total Cover				Column Totals: 100 (A) 200 (B)
Herb Stratum (Plot size: 5 ft )				Prevalence Index = B/A = 2.0
1.	100	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b>
2.				X 1 - Rapid Test for Hydrophytic Vegetation
3.				X 2 - Dominance Test is > 50%
4.				X 3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
5.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
6.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7.				
8.				
9.				
10.				
11.				
= Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>
1.				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height
2.				
3.				<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
4.				
5.				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
6.				
7.				<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
8.				
9.				
10.				
= Total Cover				
				<b>Hydrophytic Vegetation Present?</b> Yes X No
Remarks: (Include photo numbers here or on a separate sheet.)				
The Dominance Test is greater than 50 percent and the Prevalence Index is less than 3.0. The vegetation also satisfies the Rapid Test for Hydrophytic Vegetation. These observations satisfy the Hydrophytic Vegetation criterion.				



Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-14	10YR 3/2	90	10YR 3/6	10	C	M	Loamy	
14-18	10YR 5/4	100					Loamy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Depth (inches):							<b>Hydric Soil Present?</b> Yes      X      No	
Remarks: The soils in this area correspond to the Redox Dark Surface (F6) Hydric Soils Indicator presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation satisfies the soils criterion.								

# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: West Lafayette Waterline Extension and Replacement City/County: West Lafayette/  
Coshocton Sampling Dates: 1/27/2020  
Applicant/Owner: City of Coshocton State: OH Sampling Point: 12  
Investigator(s): Len Mikles & Stuart Jennings Section, Township, Range: Public Survey T5N, R5W  
Landform (hillslope, terrace, etc.): Embankment Local relief (concave, convex, none): Convex Slope (%): 8  
Subregion (LRR or MLRA): LRR N Lat: 40.2779512131 Long: -81.7872337284 Datum: WGS 1984  
Soil Map Unit Name: WaF – Watertown sandy loam, 25 to 70 percent slopes NWI Classification: N/A  
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No (If no, explain in Remarks.)  
Are vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No  
Are vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No	X	Is the Sampled Area		
Hydric Soils Present?	Yes	No	X	Within a Wetland?	Yes	No X
Wetland Hydrology Present?	Yes	No	X	Out Point for Wetland 4		
Remarks: This area does not satisfy any of the three criteria needed for a positive wetland determination. This area is not a wetland.						

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
Surface Water(A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water Stained Leaves (B9) Aquatic Fauna (B13)	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present?      Yes      No <input checked="" type="checkbox"/> Depth (inches): Water Table Present?      Yes      No <input checked="" type="checkbox"/> Depth (inches): Saturation Present?      Yes      No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes                      No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:  Wetland hydrology Indicators were not observed at this location. This observation does not satisfy the hydrology criterion.			



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

 Sampling Point: **12**


Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1.				Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
2.				
3.				Total Number of Dominant Species Across All Strata: 1 (B)
4.				
5.				Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15 ft )				
1.				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species × 1 = FACW Species × 2 = FAC Species × 3 = FACU Species 100 × 4 = 400 UPL Species × 5 = Column Totals: 100 (A) 400 (B) Prevalence Index = B/A = 4.0
2.				
3.				
4.				
5.				
= Total Cover				
Herb Stratum (Plot size: 5 ft )				
1.	<i>Schedonorus arundinaceus</i>	85	Yes	<b>Hydrophytic Vegetation Indicators:</b> 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.
2.	<i>Glechoma hederacea</i>	15	No	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
100 = Total Cover				
Woody Vine Stratum (Plot size: 30 ft )				
1.				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy Hydrophytic Vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 3/2	100					Loamy	
>4	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type:    Rock/Fill Depth (inches):    4							<b>Hydric Soil Present?</b> Yes      No      X	
Remarks: The soils in this area do not correspond to any of the Hydric Soils Indicators presented in the Field Indicators of Hydric Soils in the United States, Version 8.2 (2018). This observation does not satisfy the soils criterion.								



## **APPENDIX D: ORAM FORMS**

## Background Information

<b>Name:</b>	Len Mikles		
<b>Date:</b>	02/13/2020		
<b>Affiliation:</b>	ASC Group, Inc.		
<b>Address:</b>	800 Freeway Drive, Suite 101 Columbus, OH 43229		
<b>Phone Number:</b>	(614) 396-7369		
<b>e-mail address:</b>	Lmikles@ASCgroup.net		
<b>Name of Wetland:</b>	Wetland 1		
<b>Vegetation Communit(ies):</b>	Emergent Wetland		
<b>HGM Class(es):</b>	IA2a		
<b>Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.</b>			
		<p>See Figure 5 – Sheet 4, of the Wetland Delineation Report.</p> <div style="text-align: center;">  </div>	
Lat/Long or UTM Coordinate	Lat: 40.2770458916		Long: -81.7956584775
USGS Quad Name	Coshocton and Fresno, Ohio Quads		
County	Coshocton County		
Township	Tuscarawas & Lafayette Townships		
Section and Subsection	Public Survey T5N R5W		
Hydrologic Unit Code	050400011904		
Site Visit	January 27 - 28, 2020		
National Wetland Inventory Map	N/A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	CfB – Chili loam, 2 to 6 percent slopes		
Delineation report/map	Figure 5, Sheet 4		





## 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.	X	
<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.	X	
<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.	X	
<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.	X	
<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.		X
<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.		X

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



## Narrative Rating

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

#	Question	Circle one	
1	<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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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 viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Site: West Lafayette water line Rater(s): Len Mikles / Stu Jennings Date: 1/27/20

0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

*Wetland 1*

Select one size class and assign score.

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

4	4
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

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

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

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

14	18
max 30 pts.	subtotal

### Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed

- ☒ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☐ filling/grading
- ☐ road bed/RR track
- ☒ dredging
- ☒ other *ATV Track; AMD*

6.5	24.5
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

- ☒ mowing
- ☒ grazing
- ☒ clearcutting
- ☒ selective cutting
- ☒ woody debris removal
- ☒ toxic pollutants

- ☒ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

24.5
subtotal this page



Site: West Lafayette Water Line Rater(s): Len Mikles / Stu Jennings Date: 1/27/20

24.5

subtotal first page

0 24.5

max 10 pts

subtotal

## Metric 5. Special Wetlands.

Wetland 1

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)

4 28.5

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) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

### 6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 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

28.5

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	0	
	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	6.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersed, microtopography	4	
	TOTAL SCORE	28.5	Category based on score breakpoints

**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	<b>NO</b>	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	<b>NO</b>	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	<b>NO</b>	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?	<b>YES</b>  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	<b>NO</b>	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	<b>NO</b>  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	<b>Category 1</b>	Category 2	Category 3

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

## Background Information

<b>Name:</b> Len Mikles	
<b>Date:</b> 02/13/2020	
<b>Affiliation:</b> ASC Group, Inc.	
<b>Address:</b> 800 Freeway Drive, Suite 101 Columbus, OH 43229	
<b>Phone Number:</b> (614) 396-7369	
<b>e-mail address:</b> Lmikles@ASCgroup.net	
<b>Name of Wetland:</b> Wetland 2	
<b>Vegetation Communit(ies):</b> Emergent Wetland	
<b>HGM Class(es):</b> IIIA2a	
<b>Location of Wetland:</b> include map, address, north arrow, landmarks, distances, roads, etc.	
	<p>See Figure 5 – Sheet 5, of the Wetland Delineation Report.</p> <div style="text-align: center;">  </div>
<b>Lat/Long or UTM Coordinate</b> Lat: 40.2724234997 Long: -81.7957975628	
<b>USGS Quad Name</b> Coshocton and Fresno, Ohio Quads	
<b>County</b> Coshocton County	
<b>Township</b> Tuscarawas & Lafayette Townships	
<b>Section and Subsection</b> Public Survey T5N R5W	
<b>Hydrologic Unit Code</b> 050400011904	
<b>Site Visit</b> January 27 - 28, 2020	
<b>National Wetland Inventory Map</b> N/A	
<b>Ohio Wetland Inventory Map</b> N/A	
<b>Soil Survey</b> MnC – Mentor silt loam, 6 to 15 percent slopes	
<b>Delineation report/map</b> Figure 5, Sheet 5	



Name of Wetland: Wetland 2	
Wetland Size (acres, hectares): 0.032 acres / 0.013 hectares	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
<div style="border: 1px solid black; height: 300px; width: 100%;"></div>	
Comments, Narrative Discussion, Justification of Category Changes:	
<div style="border: 1px solid black; height: 250px; width: 100%;"></div>	
Final score :37	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.	X	
<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.	X	
<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.	X	
<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.	X	
<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.		X
<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.		X

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



## Narrative Rating

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

#	Question	Circle one	
1	<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	<b>NO</b>  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	<b>NO</b>  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	<b>NO</b>  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	<b>NO</b>  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	<b>NO</b>  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	<b>NO</b>  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	<b>NO</b>  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	<b>NO</b>  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 viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Site: West Lafayette Water line Rater(s): Len Mikler / Stu Jennings Date: 1/27/20

0	0
max 6 pts.	subtotal

## Metric 1. Wetland Area (size).

*Wetland 2*

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)

7	7
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)

15	22
max 30 pts.	subtotal

## Metric 3. Hydrology.

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

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

10	32
max 20 pts.	subtotal

## Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

32
subtotal this page



Site: West Lafayette Waterline Rater(s): Len Mikla / Stu Jennings Date: 1/27/20

32

subtotal first page

0 32

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)

5 37

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

37

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	0	
	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	15	
	Metric 4. Habitat	10	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersed, microtopography	5	
	TOTAL SCORE	37	Category based on score breakpoints

**Complete Wetland Categorization Worksheet.**




## Wetland Categorization Worksheet

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

Final Category			
Choose one	Category 1	<input checked="" type="radio"/> Category 2	Category 3

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

## Background Information

<b>Name:</b>	Len Mikles		
<b>Date:</b>	02/13/2020		
<b>Affiliation:</b>	ASC Group, Inc.		
<b>Address:</b>	800 Freeway Drive, Suite 101 Columbus, OH 43229		
<b>Phone Number:</b>	(614) 396-7369		
<b>e-mail address:</b>	Lmikles@ASCgroup.net		
<b>Name of Wetland:</b>	Wetland 3		
<b>Vegetation Communit(ies):</b>	Emergent Wetland		
<b>HGM Class(es):</b>	IIB2a		
<b>Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.</b>			
		<p>See Figure 5 – Sheet 6, of the Wetland Delineation Report.</p> <div style="text-align: center;">  </div>	
Lat/Long or UTM Coordinate	Lat: 40.2775828353		Long: -81.7899742995
USGS Quad Name	Coshocton and Fresno, Ohio Quads		
County	Coshocton County		
Township	Tuscarawas & Lafayette Townships		
Section and Subsection	Public Survey T5N R5W		
Hydrologic Unit Code	050400011904		
Site Visit	January 27 - 28, 2020		
National Wetland Inventory Map	N/A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	Or – Orrville silt loam, 0 to 3 percent slopes, occasionally flooded		
Delineation report/map	Figure 5, Sheet 6		





## 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.	X	
<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.	X	
<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.	X	
<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.	X	
<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.		X
<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.		X

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



## Narrative Rating

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

#	Question	Circle one	
1	<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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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 viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Site: West Lafayette Waterline Rater(s): Len Mikler/Stu Jennings Date: 1/27/20

1	1
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

*Wetland 3*

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)

8	9
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	23
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

- ☒ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☒ filling/grading
- ☒ road bed/RR track
- ☒ dredging
- ☒ other *utility ROW*

7.5	30.5
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

- ☐ mowing
- ☒ grazing
- ☒ clearcutting
- ☒ selective cutting
- ☒ woody debris removal
- ☒ toxic pollutants

- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

30.5

subtotal this page

last revised 1 February 2001 jjm



Site: West Lafayette Water Line Rater(s): Len Mikla / Stu Jennings Date: 1/27/20

30.5

subtotal first page

0 30.5

max 10 pts

subtotal

## Metric 5. Special Wetlands.

Wetland 3

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)

-4 26.5

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) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

### 6d. Microtopography

Score all present using 0 to 3 scale.

- ☒ 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

26.5

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	1	
	Metric 2. Buffers and surrounding land use	8	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	7.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersed, microtopography	-4	
	TOTAL SCORE	26.5	Category based on score breakpoints

**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	<b>NO</b>	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	<b>NO</b>	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	<b>NO</b>	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?	<b>YES</b>  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	<b>NO</b>	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	<b>NO</b>  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	<b>Category 1</b>	Category 2	Category 3

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

## Background Information

<b>Name:</b>	Len Mikles		
<b>Date:</b>	02/13/2020		
<b>Affiliation:</b>	ASC Group, Inc.		
<b>Address:</b>	800 Freeway Drive, Suite 101 Columbus, OH 43229		
<b>Phone Number:</b>	(614) 396-7369		
<b>e-mail address:</b>	Lmikles@ASCgroup.net		
<b>Name of Wetland:</b>	Wetland 4		
<b>Vegetation Communit(ies):</b>	Emergent Wetland		
<b>HGM Class(es):</b>	IVC2a		
<b>Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.</b>			
		<p>See Figure 5 – Sheet 6, of the Wetland Delineation Report.</p> <div style="text-align: center;">  </div>	
Lat/Long or UTM Coordinate	Lat: 40.277868883 Long: -81.787274256		
USGS Quad Name	Coshocton and Fresno, Ohio Quads		
County	Coshocton County		
Township	Tuscarawas & Lafayette Townships		
Section and Subsection	Public Survey T5N R5W		
Hydrologic Unit Code	050400011904		
Site Visit	January 27 - 28, 2020		
National Wetland Inventory Map	N/A		
Ohio Wetland Inventory Map	N/A		
Soil Survey	WaF – Watertown sandy loam, 25 to 70 percent slopes		
Delineation report/map	Figure 5, Sheet 6		





## 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.	X	
<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.	X	
<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.	X	
<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.	X	
<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.		X
<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.		X

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



## Narrative Rating

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

#	Question	Circle one	
1	<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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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	<b>NO</b> 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 viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

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

Site: West Lafayette Water Line Rater(s): Len Mikes/Steve Jennings Date: 1/27/20

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)

*Wetland 4*

8	9
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)

16	25
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

- ☒ ditch
- ☐ tile
- ☐ dike
- ☐ weir
- ☐ stormwater input

- ☐ point source (nonstormwater)
- ☒ filling/grading
- ☒ road bed/RR track
- ☒ dredging
- ☒ other *utility ROW*

11	36
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

- ☐ mowing
- ☐ grazing
- ☐ clearcutting
- ☐ selective cutting
- ☒ woody debris removal
- ☒ toxic pollutants

- ☐ shrub/sapling removal
- ☐ herbaceous/aquatic bed removal
- ☐ sedimentation
- ☐ dredging
- ☐ farming
- ☐ nutrient enrichment

36
subtotal this page

last revised 1 February 2001 ijm



Site: West Lafayette Water Line Rater(s): Len Mikler / Stu Jennings Date: 1/27/20

36  
subtotal first page

0 36  
max 10 pts. subtotal

### Metric 5. Special Wetlands.

Wetland 4

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)

-3 33  
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) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high (4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 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

33

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	1	
	Metric 2. Buffers and surrounding land use	8	
	Metric 3. Hydrology	16	
	Metric 4. Habitat	11	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersed, microtopography	-3	
	TOTAL SCORE	33	Category based on score breakpoints

**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.**

## **APPENDIX E: ODNR HERITAGE DATA REQUEST**





# Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Jeff Johnson, Chief  
Division of Natural Areas & Preserves  
2045 Morse Rd, Building A  
Columbus, Ohio 43229  
Phone: (614) 265-6300

28 January 2020

Len Mikles  
ASC Group, Inc.  
800 Freeway Dr. North  
Columbus, OH 43229

Dear Mr. Mikles,

I have reviewed the Natural Heritage Database for the West Lafayette Waterline Installation & Replacement project area, including a one mile radius, in Lafayette and Tuscarawas Townships, Coshocton County, Ohio. The numbers on the list below correspond to the areas marked on the accompanying map. Common name, scientific name and status are given for each species.

1. *Noturus eleutherus* – Mountain Madtom, threatened
2. *Scaphiopus holbrookii* – Eastern Spadefoot, endangered

We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state nature preserves, wildlife areas, parks or forests, national wildlife refuges, parks or forests, or other protected natural areas within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

A handwritten signature in blue ink that reads "Debbie Woischke".

Debbie Woischke  
Ohio Natural Heritage Program

# West Lafayette Waterline Installation & Replacement

