Colliers Engineering & Design

Wetland Delineation Report

Intel Project Slice

Colliers Engineering & Design Project Number: 22011510A

July 7, 2023

Prepared for:

NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared by:

Colliers Engineering & Design, Inc.
1501 Reedsdale Street, Suite 302
Pittsburgh, PA 15233
Main: 412-618-5390
Colliersengineering.com

Colliers Engineering & Design

Table of Contents

APPENDICES

EXECUTIVE SUMMARY

On behalf of NiSource Inc., Colliers Engineering & Design (CED) conducted field delineations for the Intel Project Slice within Franklin, Delaware, and Licking Counties, Ohio (hereinafter described as "Project Study Area"). The Project Study Area or "Survey Corridor" begins at latitudinal coordinates 40.139857 N and longitudinal coordinates -82.761203 W and ends at coordinates 40.118148 N and longitudinal coordinates -82.722787 W. The Project Study Area is located approximately 18 miles northeast of Columbus, Ohio. Access to the Project Study Area can be achieved from Tippet Road, Johnstown Utica Road, Beech Road NW, and Miller Road NW.

The Project Study Area is comprised of a 100-foot wide survey corridor centered on the proposed pipeline alignment for 4.15 miles. The Project Study Area begins at latitudinal coordinates 40.139857 N and longitudinal coordinates -82.761203 W and ends at coordinates 40.118148 N and longitudinal coordinates -82.722787 W. The Project Study Area was investigated to identify potential jurisdictional Waters of the U.S. (WOTUS) and wetlands subject to Federal or State regulatory jurisdiction. The delineation methodologies developed by the USACE and the USEPA, as described in the *1987 Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0*) and the subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high-water mark within drainage features (Environmental Laboratory, 1987; USACE 2012; USACE 2005) were utilized during our investigation.

Based on the field investigations, two (2) wetland features and two (2) stream features were delineated within the Project Study Area by CED on November 10, 2022 and December 6, 2022. A total of 0.88 acres of palustrine forested (PFO) wetland, 0.18 acres of palustrine emergent (PEM) wetland, 132 linear feet of perennial (R3) stream, and 1,170 linear of intermittent (R4) stream were delineated. It is CED's professional opinion that these wetland and stream features are considered jurisdictional WOTUS since they are or either drain to Duncan Creek and Blacklick Creek. These stream and wetland features can be considered jurisdictional WOTUS since they connect and/or are directly connected to Duncan Creek and Blacklick Creek. The location and size of jurisdictional areas delineated are shown on Figure 5. Wetland Determination Map (**Appendix A**).

1.0 PROJECT INFORMATION

Project Name	Intel Project Slice
Project Location	Tippet Road, Johnstown Utica Road, Beech Road NW, and Miller Road NW
Municipality	New Albany
County	Franklin, Delaware, Licking
State	Ohio
Latitude/Longitude	40.139857 N / -82.761203 W to 40.118148 N / -82.722787 W.
Project Study Area Size	+/- 4.15 mi
U.S.G.S. Quadrangle	Jersey, New Albany, and Sunbury OH
Potential Jurisdictional Waters of the U.S. (WOTUS) and wetlands	See Aquatic Resource Area Summary Table on Page 11
River Basin (HUC) & sub-watershed	Upper Scioto Basin: 8 Digit HUC Code: 0504006 Licking River Basin
Nearest Stream	Duncan Run and Blacklick Creek
Navigable Water Nexus	Stream features delineated on the Project Study Area would be considered jurisdictional WOTUS and wetlands since these features drain towards Duncan Run and Blacklick Creek
Isolated Wetlands/Waters Present (Yes/No)	No

2.0 INTRODUCTION

On behalf of NiSource Inc., Colliers Engineering & Design (CED) conducted field delineations for the Intel Project Slice located along Tippet Road, Johnstown Utica Road, Beech Road NW, and Miller Road NW within Franklin, Delaware, and Licking Counties, Ohio (hereinafter described as “Project Study Area”). The Project Study Area begins at latitudinal coordinates 40.139857 N and longitudinal coordinates -82.761203 W and ends at coordinates 40.118148 N and longitudinal coordinates -82.722787 W. The Project Study Area is located approximately 18 miles northeast of Columbus, Ohio. Access to the Project Study Area can be achieved from Tippet Road, Johnstown Utica Road, Beech Road NW, and Miller Road NW. The Project Study Area is bordered by residential homes, agricultural areas, and forested areas.

The Project Study Area was investigated to identify potential jurisdictional Waters of the U.S. (WOTUS) and wetlands subject to Federal or State regulatory jurisdiction. According to the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA) regulations described in Section 404 of the Clean Water Act (33 CFR Section 328.3 and 40 CFR Section 230.3) respectively, wetlands are "...areas that are inundated or saturated with surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

3.0 PROPERTY DESCRIPTION

The Project Study Area is located within the Licking River Basin (8 Digit HUC Code 05040006). Access to the Project Study Area can be achieved from Tippet Road, Johnstown Utica Road, Beech Road NW, and Miller Road NW. The western section of the Project Study Area drains west towards Blacklick Creek, and the eastern section of the Project Study Area drains north (Duncan Creek). The Project Study Area does contain a floodplain according to FEMA Floodplain Panel Maps 39089C0120H, 39089C0280H, and 39089C0257H (eff. 5/2/2007). The Project Study Area contains approximately 10% forested communities and 90% agricultural land. The forested areas are comprised of a mixture of oak, tulip poplar, red maple, pine, and sweetgum species that dominate the canopy layer. Duncan Creek is located in the eastern section of the Project Study Area, flowing south to north. The unnamed tributary located in the western section drains to Blacklick Creek.

4.0 BACKGROUND INFORMATION

Prior to on-site field investigations, several publicly available sources of information were reviewed to determine the likelihood of wetlands and surface waters occurring within Project Study Area. These mapping resources generally include, but are not limited to, the United States Geological Survey (USGS) maps (Figure 1. Project Location Map, **Appendix A**), the U.S. Department of Agriculture - Natural Resource Conservation Service (NRCS) soils database (Figure 2. Soil Series Map, **Appendix A**), National Hydrography Dataset (NHD), and the U.S. Fish & Wildlife Service National Wetlands Inventory (NWI) database (Figure 3. National Wetlands Inventory Series, **Appendix A**).

4.1 U.S. Geological Survey Map

The Project Study Area appears on the *Jersey, New Albany,* and *Sunbury* Quadrangle USGS Maps (Figure 1. Project Location Map, **Appendix A**) and is depicted as developed properties which contain approximately 10% forested areas habitat communities and 90% agricultural land. Residential and forested areas are located within the vicinity of the Project Study Area to the north, south, east, and west. Elevations at the Project Study Area range from 1150 to 1200 feet above mean sea level (MSL) based on the USGS map.

4.2 Soil Survey

The NRCS Web Soil Survey depicts the following five (5) Soil Series map units within the Project Study Area and provides a description of the properties and qualities of each soil:

Table 1. NRCS Soil Mapping Units for Intel Project Slice

Map Unit Symbol	Map Unit Name	Drainage Class	Runoff Class	Depth to Water Table
BeA	Bennington silt loam, 0 to 2 percent slopes	Somewhat Poorly Drained	High	About 6 to 12 inches
BeB	Bennington silt loam, 2 to 6 percent slopes	Somewhat Poorly Drained	High	About 6 to 12 inches
PwA	Pewamo silty clay loam, 0 to 1 percent slopes	Very Poorly drained	Negligible	About 0 to 12 inches
Pe	Pewamo silty clay loam, low carbonate till, 0 to 2 percent slopes	Very Poorly Drained	Negligible	About 0 to 12 inches
Pm	Pewamo silt clay loam, low carbonate till, 0 to 2 percent slopes	Very Poorly drained	Negligible	About 0 to 12 inches

Of the five (5) mapped soil units, all are listed as being hydric. Hydric soils are described as most likely to contain wetlands primarily due to the shallow seasonal high-water table.

5.0 WETLAND & SURFACE WATER DELINEATION METHODOLOGY

The wetland delineation methodologies developed by the USACE and the USEPA, as described in the 1987 Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: *Midwest Region* (Version 2.0) and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high-water mark within drainage features (Environmental Laboratory, 1987; USACE 2012; USACE 2005), were utilized during our investigation. These methodologies generally involve the review of three parameters (vegetation, soils, hydrology) when making a wetland or non-wetland determination.

The Project Study Area was walked, community types were characterized, and wetland and surface water boundaries were flagged. Sample stations were established along the boundaries to examine vegetation, soils, and hydrology. Using this data, boundaries were established based on changes in vegetation, soils, hydrology, and surface water characteristics.

6.0 WETLAND AND SURFACE WATER DELINEATION RESULTS

6.1 WETLAND AND SURFACE WATER SUMMARY

On-site field investigations of the Project Study Area were conducted by CED on November 10, 2022 and December 6, 2022. The on-site delineation did verify that there are potential jurisdictional wetlands and surface waters within Project Study Area. A summary of the aquatic resources identified within the Project Study Area is provided below in Table 2: Aquatic Resource Summary. The aquatic resources were delineated as shown on Figure 5. Delineation Results (**Appendix A**). Data forms supporting the delineation are located in **Appendix B**.

Table 2: Aquatic Resource Area Summary Table

Aquatic Resource	PFO Area (AC)	PEM Area (AC)	Aquatic Resource	R3 Length (LF)	R4 Length (LF)
Wetland 1		0.18	Stream1	59	1170
Wetland 2	0.88		Stream 2	73	-
Total Wetlands by Class (AC)	0.88	0.18	Total Stream by Class (LF)	132	1170
Total Wetlands (AC)	1.06		Total Stream (LF)	1302	

Note 1: Cowardian Classification; PFO = palustrine forested wetland; PEM = palustrine emergent wetland; PUB = palustrine unconsolidated bottom (pond), R3 = perennial stream, R4 = intermittent stream

6.2 VEGETATION

Representative plant species within the wetland areas include the following: sweetgum (*Liquidambar styraciflua*), quaking aspen (*Populus tremuloides*), red maple (*Acer rubrum*), winterberry (*Ilex verticillata*), hairy willowherb (*Epilobium hirsutum*), blue vervain (*Verbena hastata*), and reed canary grass (*Phalaris arundinacea*).

Representative plant species within the upland areas include the following: johnson grass (*Sorghum halepense*) and corn (*Zea mays*).

6.3 SOILS

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil (USDA 2003). The soils in the wetland areas were variable, but for the most part, exhibited low chroma matrices with redoximorphic features. Soils within the wetland areas on-site exhibit low chroma matrix colors and concentrations that are characteristic of reducing anaerobic conditions associated within the formation of hydric soils. Wetland soils were typically black (10YR 2/1) with yellow (7.5YR 5/6) within the upper 16 inches. Jurisdictional soils were generally underlain black (10YR 2/1) with yellow (7.5YR 5/6) down to 16 inches. Soils within jurisdictional areas meet the F3 Depleted Matrix hydric soil indicator. Textures within the jurisdictional areas include clay and loam. The upland soils within each area varied from light yellowish brown (10YR 6/4), yellowish brown (10YR 5/6), and very dark grayish brown (10YR 3/2), within the upper 16 inches. Soil textures include clay and loam.

6.4 HYDROLOGY

On-site field investigations of the Project Study Area were conducted by CED on November 10, 2022. Indicators of hydrology present in the delineated wetlands, include, but are not limited to, drainage patterns, saturation at the surface, and geomorphic position. The USACE Antecedent Precipitation Tool (APT) was utilized for the Project Study Area and is provided **Appendix C**. Based on the USACE APT tool, the on-site field investigations were conducted in "Drier than Normal" precipitation conditions with a 30-day rolling total.

Indicators of wetland hydrology are largely absent in upland areas.

7.0 WETLAND DELINEATION CONCLUSION

Two (2) wetland features and two (2) stream features were delineated within the Project Study Area by CED on November 10, 2022 and December 6, 2022. A total of 0.88 acres of palustrine forested (PFO) wetland, 0.18 acres of palustrine emergent (PEM) wetland, 132 linear feet of perennial (R3) stream, and 1,170 linear of intermittent (R4) stream were delineated.

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8.0 REFERENCE

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

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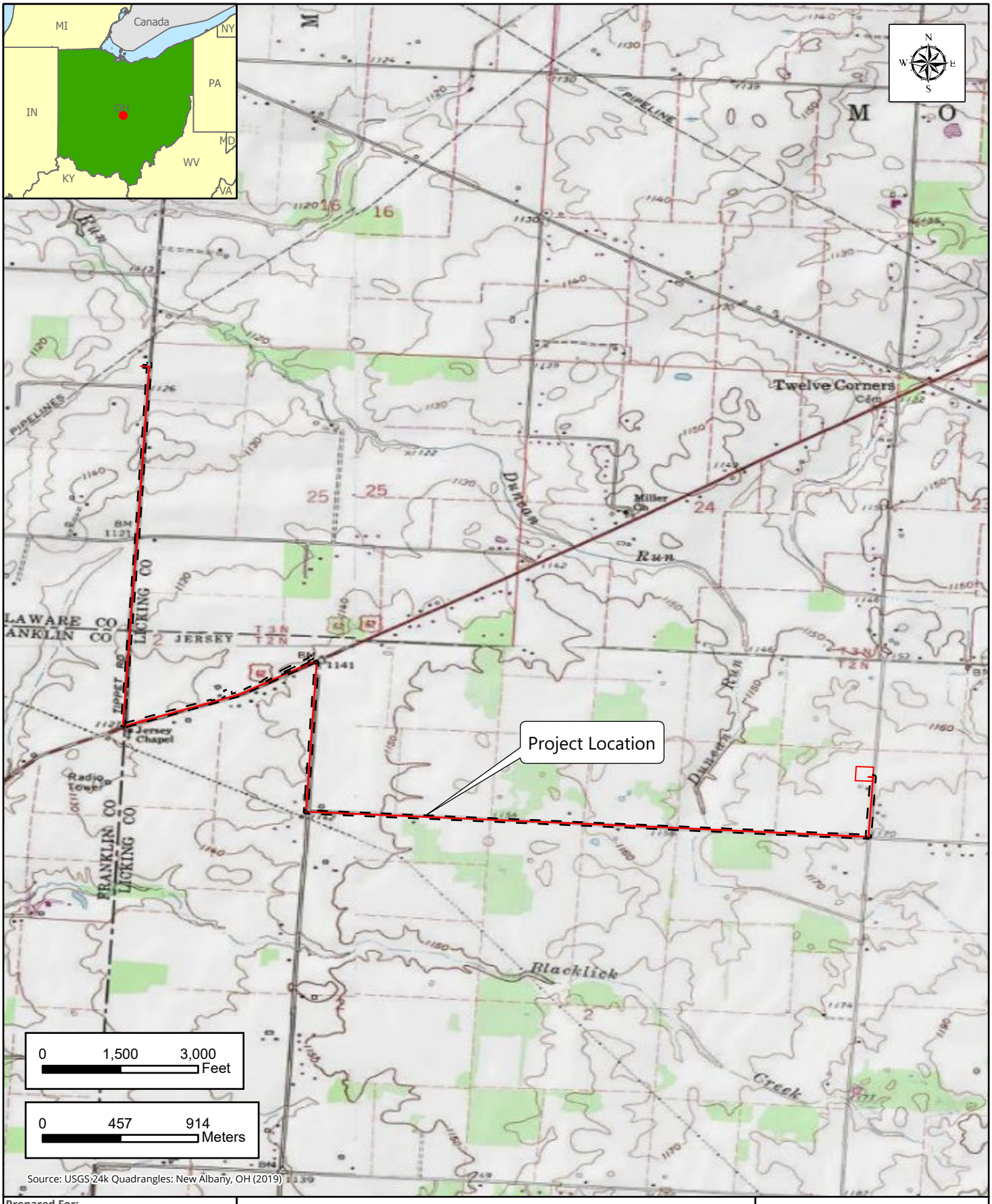
APPENDIX A
FIGURES



Prepared For:

NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:

Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com

Colliers Engineering & Design

Project Location Map

NiSource Intel Project

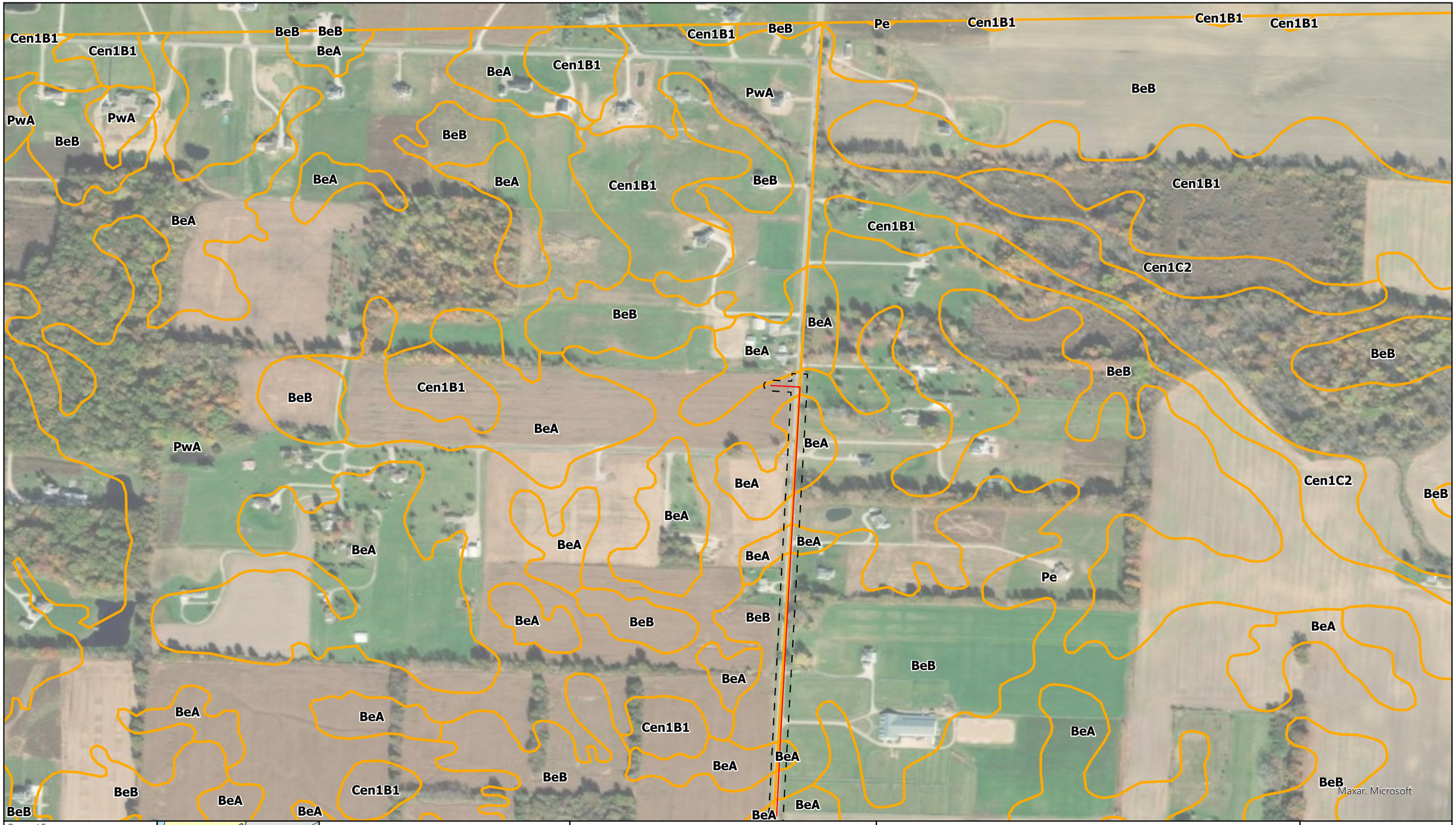
Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

Figure 1

Project Area

Project Location



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T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
0 75 150 Meters

Source: USDA NRCS

N W E S

Soil Map

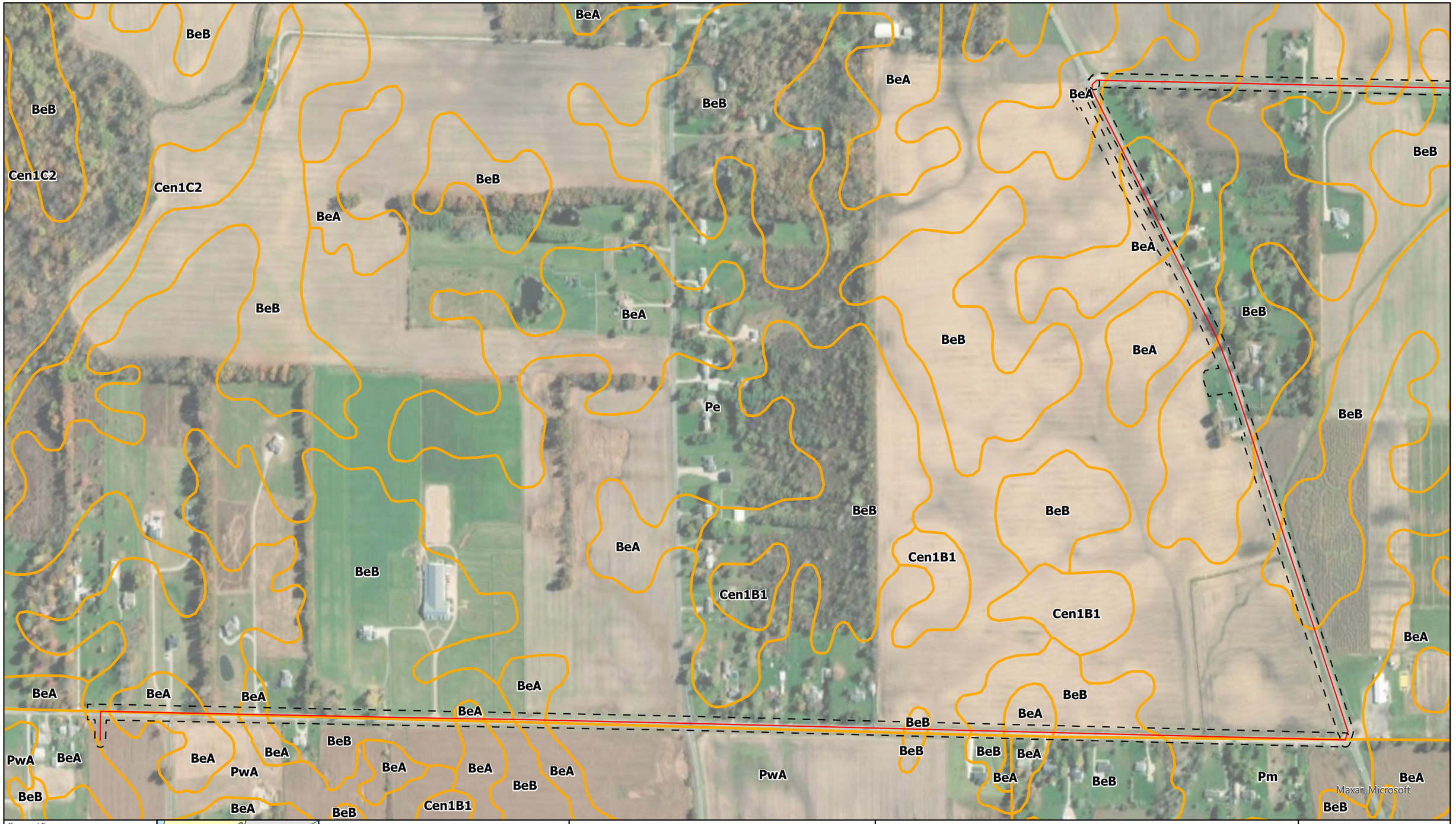
NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

Project Location
Project Area
Soil Map Unit (SSURGO)

Figure 2.1



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T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

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Source: USDA NRCS

Soil Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
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- Project Location
- Project Area
- Soil Map Unit (SSURGO)

Figure 2.2

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NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
0 75 150 Meters

Source: USDA NRCS

Soil Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

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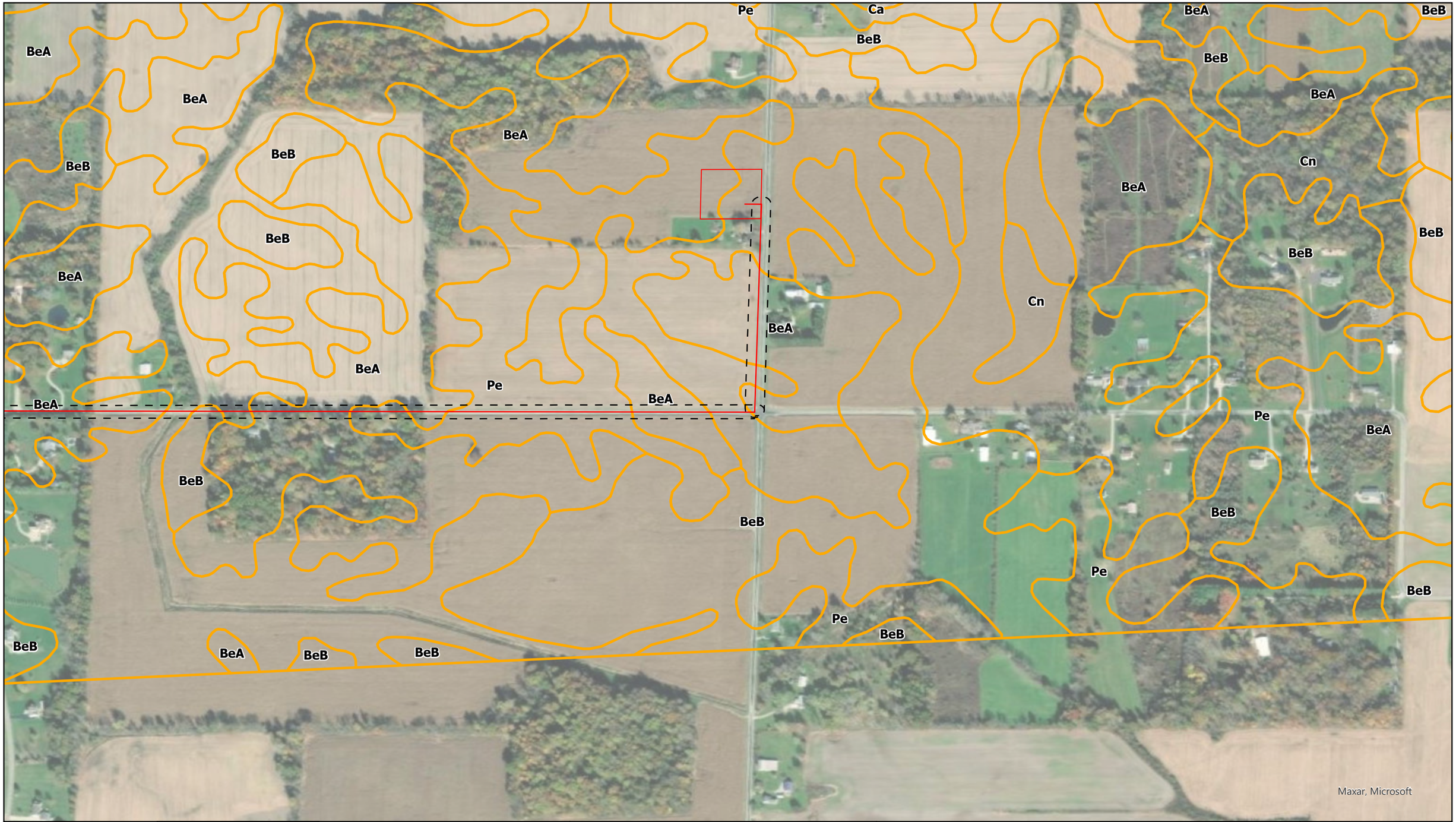
- Project Location
- Project Area
- Soil Map Unit (SSURGO)

Figure 2.3



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www.colliersengineering.com
Colliers Engineering & Design

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0 75 150 Meters

Source: USDA NRCS

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Soil Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

Project Location
Project Area
Soil Map Unit (SSURGO)

Figure 2.4

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NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
0 75 150 Meters

Source: NHD & NWI
HUC 8 #: 05060001

N W E S

NWI & NHD Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
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- Project Location
- Project Area
- Stream (NHD)
- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Figure 3.1

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NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
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Source: NHD & NWI
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NWI & NHD Map

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Date:	Project #:	Drawn By:
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- Project Location
- Project Area
- Stream (NHD)
- Freshwater Emergent Wetland
- Freshwater Pond
- Riverine

Figure 3.2

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NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

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Source: NHD & NWI
HUC 8 #: 05060001

NWI & NHD Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

- Project Location
- Project Area
- Stream (NHD)
- Waterbody (NHD)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Figure 3.3

Maxar, Microsoft

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NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
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Source: NHD & NWI
HUC 8 #: 05060001

N W E S

NWI & NHD Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

- Project Location
- Project Area
- Stream (NHD)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

Figure 3.4

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NiSource Inc.
801 E. 86th Avenue
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1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
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www.colliersengineering.com
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0 250 500 Feet
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Source: NHD, FEMA

N W E S

Floodplain Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
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Project Location
Project Area
100 Year Floodzone
Streams (NHD)

Figure 4.1

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801 E. 86th Avenue
Merrillville, IN 46410

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Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
0 75 150 Meters

Source: NHD, FEMA

Floodplain Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

- Project Location
- Project Area
- 100 Year Floodzone
- Streams (NHD)

Figure 4.2

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NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
0 75 150 Meters

Source: NHD, FEMA

N E S W

Floodplain Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

- Project Location
- Project Area
- 100 Year Floodzone
- Streams (NHD)
- Waterbody (NHD)

Figure 4.3

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NiSource Inc.
801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
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0 250 500 Feet
0 75 150 Meters

Source: NHD, FEMA

N W E S

Floodplain Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

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Project Location
Project Area
100 Year Floodzone
Streams (NHD)

Figure 4.4

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N W E S

Wetland Delineation Map

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Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

Project Location
Project Area

Figure 5.1

Aquatic Resource Area Summary Table

Aquatic Resource	PFO Area (AC)	PEF Area (AC)		Aquatic Resource	R3 Length (LF)	R4 Length (LF)
Wetland 1		0.18		Stream 1	59	
Wetland 2	0.88			Stream 1		1,164
				Stream 1		6
				Stream 2	41	
				Stream 2	32	
Total Wetlands by Class (AC)	**0.88**	**0.18**		**Total Stream by Class (LF)**	**132**	**1,170**
Total Wetlands (AC)	**1.06**			**Total Streams (LF)**	**1,302**	

Note 1: Cowardin Classification; PFO = palustrine forested wetland; PEM = palustrine emergent wetland; R3 = perennial stream; R4 = intermittent stream

Potential Non-Wetland of the US; Intermittent Stream 1; +/- 5.82 FT

Potential Non-Wetland of the US Intermittent Stream 1; +/- 1,164.04 FT

Potential Wetland of the US; Wetland 1; PEM +/- 0.18 AC

Potential Non-Wetland of the US; Perennial Stream 1; +/- 58.79 FT

Prepared For:
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801 E. 86th Avenue
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Pittsburgh Office
1501 Reedsdale St Ste 302
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www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet

0 75 150 Meters

N E S W

Wetland Delineation Map

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Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

- Project Location
- Project Area
- Culverts
- Intermittent
- Perennial
- PEM

Figure 5.2

Aquatic Resource Area Summary Table

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801 E. 86th Avenue
Merrillville, IN 46410

Prepared By:
Pittsburgh Office
1501 Reedsdale St Ste 302
Pittsburgh, PA, 15233
T: 412 618 5390
www.colliersengineering.com
Colliers Engineering & Design

0 250 500 Feet
0 75 150 Meters

N E S W

Wetland Delineation Map

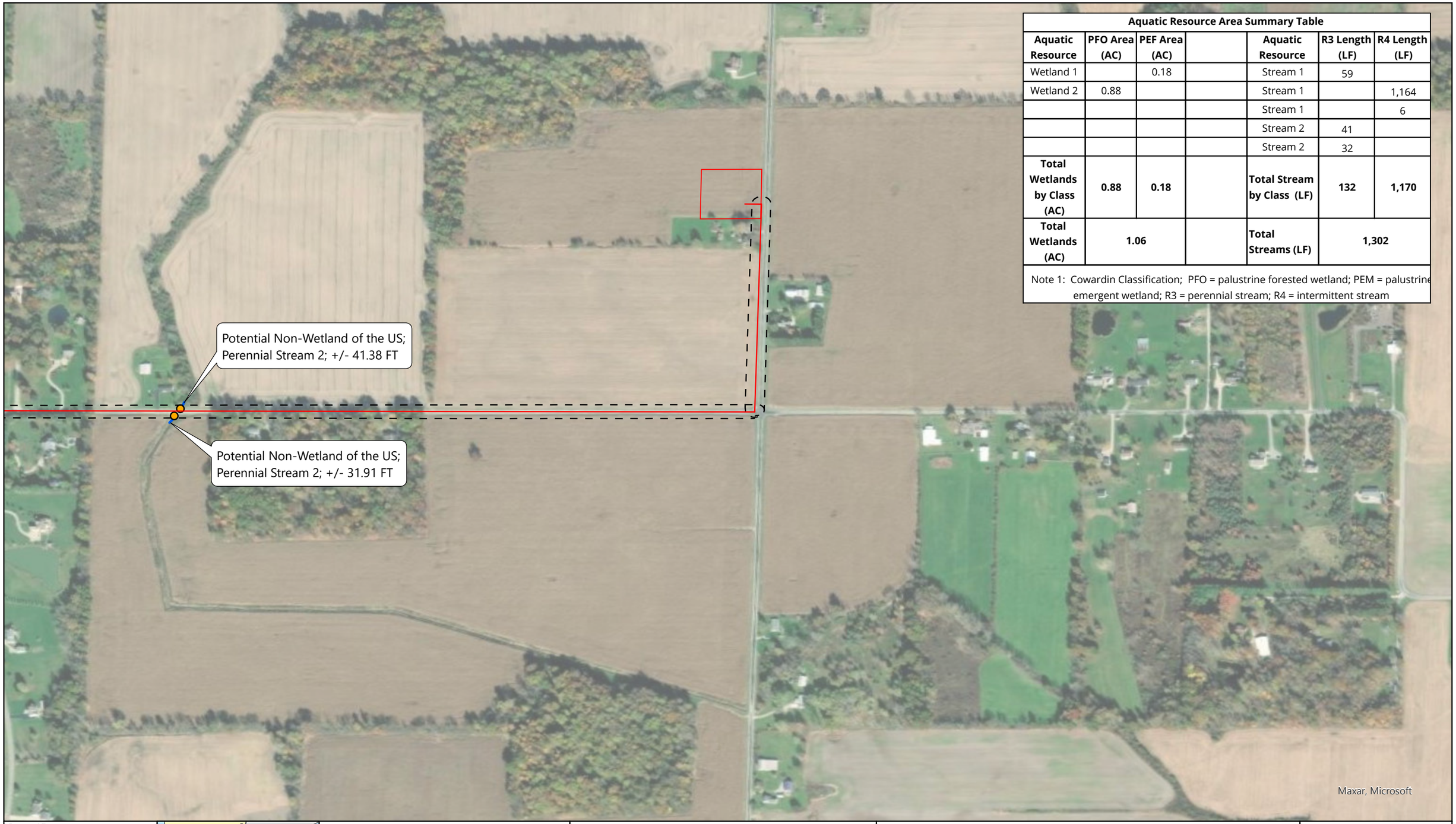
NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

Project Location
Project Area
PFO

Figure 5.3



Aquatic Resource Area Summary Table

Aquatic Resource	PFO Area (AC)	PEF Area (AC)		Aquatic Resource	R3 Length (LF)	R4 Length (LF)
Wetland 1		0.18		Stream 1	59	
Wetland 2	0.88			Stream 1		1,164
				Stream 1		6
				Stream 2	41	
				Stream 2	32	
Total Wetlands by Class (AC)	**0.88**	**0.18**		**Total Stream by Class (LF)**	**132**	**1,170**
Total Wetlands (AC)	**1.06**			**Total Streams (LF)**	**1,302**	

Note 1: Cowardin Classification; PFO = palustrine forested wetland; PEM = palustrine emergent wetland; R3 = perennial stream; R4 = intermittent stream

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Merrillville, IN 46410

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N W E S

Wetland Delineation Map

NiSource Intel Project

Franklin, Delaware & Licking County, Ohio

Date:	Project #:	Drawn By:
7/7/2023	22011510A	AW

Project Location
Project Area
Culverts
Perennial

Figure 5.4

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APPENDIX B
DATA FORMS

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Intel Project Slice City/County: Licking Sampling Date: 11/10/22

Applicant/Owner: Campos EPC State: OH Sampling Point: W-1

Investigator(s): TD & AY Section, Township, Range: Johnstown

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

Slope (%): 5% Lat: 40.123627 Long: -82.762073 Datum: NAD 83

Soil Map Unit Name: BeB NWI or WWI classification: PFO1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

PEM Wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	30	Y	FAC
2.			NI
3.			NI
4.			NI
5.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 13x15)			
1. *Ilex verticillata*	20	Y	FACW
2.	15	Y	FACU
3.	30	Y	FAC
4.			
5.			
	65 = Total Cover		
Herb Stratum (Plot size: 5x5)			
1.	5	Y	OBL
2. *Epilobium hirsutum*	20	Y	FACW
3. *Verbena hastata*	20	Y	FACW
4. *Phalaris arundinacea*	20	Y	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30x30)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	80	x 2 =	160
FAC species	60	x 3 =	180
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	160 (A)		405 (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	90	7.5YR 5/6	10	C	M	Clay loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Meets F3

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X **No** ___

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

N/A

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Intel Project Slice | City/County: Licking | Sampling Date: 11/10/22

Applicant/Owner: Campos EPC | State: OH | Sampling Point: W-2

Investigator(s): TD & AY | Section, Township, Range: Johnstown

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

Slope (%): 5% | Lat: 40.116139 | Long: -82.742746 | Datum: NAD 83

Soil Map Unit Name: Pe | NWI or WWI classification: PFO1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

PFO Wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	60	Y	FAC
2. *Populus tremuloides*	20	Y	FAC
3. *Ulmus americana*	20	Y	FACW
4.			NI
5.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 13x15)			
1.	10	Y	FACW
2. *Ulmus americana*	10	Y	FACW
3. *Cornus mas*	10	Y	FAC
4. *Carex intumescens*	10	Y	FACW
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 5x5)			
1. *Phalaris arundinacea*	30	Y	FACW
2. *sedge spp*	10	Y	NI
3.			NI
4.			NI
5.			
6.			
7.			
8.			
9.			
10.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 30x30)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88.89 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	170 (A)		430 (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: W-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	90	7.5YR 5/6	10	C	M	Clay loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Meets F3

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

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

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

N/A

Remarks:

Reset Form | Print Form

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Intel Project Slice City/County: Gahannah/Franklin Sampling Date: 3/2/22

Applicant/Owner: Campos EPC State: OH Sampling Point: UP1

Investigator(s): REK Section, Township, Range: T/N R116W

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

Slope (%): 5% Lat: Long: Datum: NAD 83

Soil Map Unit Name: CrcllC2 NWI or WWI classification:

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30x30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	15	Y	FAC
2. *Fragus grandifolia*	5	Y	FACU
3. *Acer saccharum*	5	Y	FACU
4.			NI
5.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 13x15)			
1. *Acer rubrum*	15	Y	FAC
2. *Rosa multiflora*	10	Y	FACU
3.			NI
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: 5x5)			
1.			NI
2.			NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
		= Total Cover	
Woody Vine Stratum (Plot size: 30x30)			
1. *Smilax rotundifolia*	5	Y	FAC
2.			
	5	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	55 (A)		185 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: UP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 6/4	100					Clay	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

N/A

Remarks:

ORAM v. 5.0 Field Form Quantitative Rating Wetland #1

Site: NiSource Intel Project	Rater(s): TD & AY	Date: 11/10/22

Metric 1. Wetland Area (size).

2 (max 6 pts.) | 2 (subtotal)

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)
- [X] 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)

Metric 2. Upland buffers and surrounding land use.

5 (max 14 pts.) | 7 (subtotal)

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)
- [X] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check 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)
- [X] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

20 (max 30 pts.) | 27 (subtotal)

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

- [ ] High pH groundwater (5)
- [X] Other groundwater (3)
- [X] Precipitation (1) 4
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

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

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)
- [X] <0.4m (<15.7in) (1) 1

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

17 (max 20 pts.) | 44 (subtotal)

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

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

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

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

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

- [X] None or none apparent (9) 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

49 subtotal this page

last revised 1 February 2001 jjm

Site:	Rater(s):	Date:

44
subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts. | 44 subtotal

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)

Metric 6. Plant communities, interspersion, microtopography.

7 max 20 pts. | 51 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

5
- [ ] Aquatic bed
- [X] Emergent 3
- [X] Shrub 2
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

2
- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [X] Moderately low (2)
- [ ] Low (1)
- [ ] None (0)

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

-1
- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [X] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

57

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM v. 5.0 Field Form Quantitative Rating

Site: W-2	Rater(s): TD & AY	Date: 11/10/22

Metric 1. Wetland Area (size).

max 6 pts. | subtotal: 2 | 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)
- [X] 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)

Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal: 1 | 3

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)
- [X] 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)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

max 30 pts. | subtotal: 19 | 22

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

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

9

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)
- [X] Part of riparian or upland corridor (1)

1

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)
- [X] <0.4m (<15.7in) (1)

1

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

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

1

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

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

12

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 19 | 41

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

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

4

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

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

6

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

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

9

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

41

subtotal this page

last revised 1 February 2001 jjm

Site:	Rater(s):	Date:

41
subtotal first page

Metric 5. Special Wetlands.

0 (max 10 pts.) | 41 (subtotal)

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)

Metric 6. Plant communities, interspersion, microtopography.

12 (max 20 pts.) | 53 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [0] Emergent
- [2] Shrub
- [3] Forest
- [0] Mudflats
- [0] Open water
- [0] Other_____

5

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [X] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [ ] None (0)

3

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

- [ ] Extensive >75% cover (-5)
- [X] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

2

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [X] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

2

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

53

End of Quantitative Rating. Complete Categorization Worksheets.

Headwater Habitat Evaluation Index Field Form

Ohio Environmental Protection Agency

HHEI Score (sum of metrics 1+2+3) 80

SITE NAME/LOCATION NiSource Intel Project

SITE NUMBER S-1 RIVER BASIN 0504006 RIVER CODE _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) _____ LAT 40.123143 LONG -82.762267 RIVER MILE _____

DATE 11/10/22 SCORER TD + AY COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

1. SUBSTRATE (Estimate percent of every type present). Check *ONLY* two predominant substrate *TYPE* boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B

TYPE		PERCENT
☐	BLDR SLABS [16 pts]	
☐	BOULDER (>256 mm) [16 pts]	
☐	BEDROCK [16 pts]	
☑	COBBLE (65-256 mm) [12 pts]	60
☐	GRAVEL (2-64 mm) [9 pts]	40
☒	SAND (<2 mm) [6 pts]	

TYPE		PERCENT
☒	SILT [3 pt]	
☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	FINE DETRITUS [3 pts]	
☐	CLAY or HARDPAN [0 pt]	
☐	MUCK [0 pts]	
☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) 21

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 9

HHEI Metric Points

Substrate Max = 40

30

A + B

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

- ☒ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):** 41.1

Pool Depth Max = 30

20

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☒ > 3.0 m - 4.0 m (> 9' 7"- 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ **AVERAGE BANKFULL WIDTH (meters)** 10.7

Bankfull Width Max=30

30

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R	
☐	☐	Wide >10m
☐	☒	Moderate 5-10m
☒	☐	Narrow <5m
☐	☐	None

FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	
☐	☒	Mature Forest, Wetland
☐	☐	Immature Forest, Shrub or Old Field
☒	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

L	R	
☐	☐	Conservation Tillage
☒	☐	Urban or Industrial
☐	☒	Open Pasture, Row Crop
☐	☐	Mining or Construction

COMMENTS _____

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

- ☐ Stream Flowing
- ☒ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☒ Dry channel, no water (ephemeral)

COMMENTS _____

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

☐ None	☒ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☐ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: _____ Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): _____ Canopy (% open): _____

Were samples collected for water chemistry? (Y/N): _____ Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

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

_____

Additional comments/description of pollution impacts: _____

_____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) Y Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

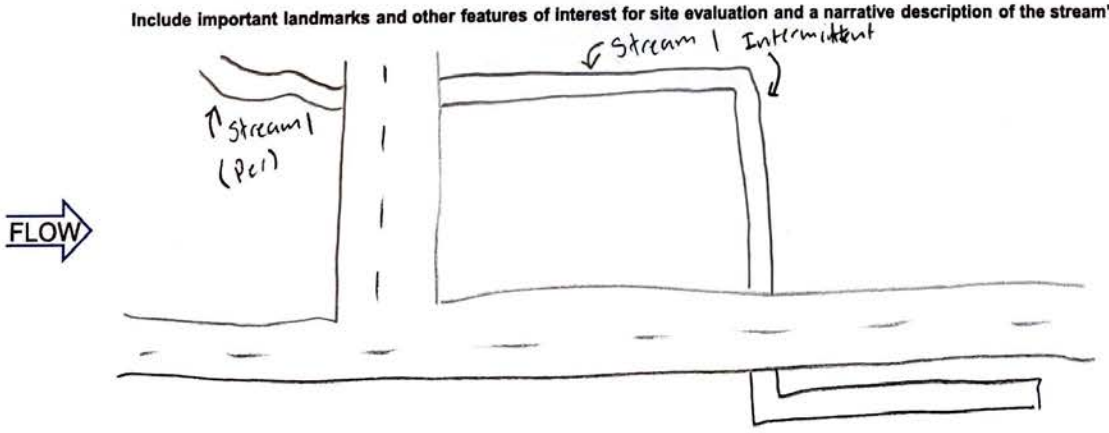
Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): _____

Comments Regarding Biology: _____

_____

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

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



Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3) 33

SITE NAME/LOCATION S-2 Ag Field two crossings

SITE NUMBER _____ RIVER BASIN 0504006 RIVER CODE _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) _____ LAT 40.121499 LONG -82.759259 RIVER MILE _____

DATE 1/10/22 SCORER _____ COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

1. SUBSTRATE (Estimate percent of every type present). Check *ONLY* two predominant substrate *TYPE* boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pts]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☒	CLAY or HARDPAN [0 pt]	
☐	GRAVEL (2-64 mm) [9 pts]	30	☐	MUCK [0 pts]	
☒	SAND (<2 mm) [6 pts]	80	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40 18

A + B

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

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☒	NO WATER OR MOIST CHANNEL [0pts]

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

Pool Depth Max = 30 0

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

☐	> 4.0 meters (> 13') [30 pts]	☒	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7"- 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS _____ **AVERAGE BANKFULL WIDTH (meters)** 3.5

Bankfull Width Max=30 15

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)

L	R	
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☒	☒	Narrow <5m
☐	☐	None

FLOODPLAIN QUALITY (Most Predominant per Bank)

L	R		L	R	
☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Residential, Park, New Field	☒	☒	Open Pasture, Row Crop
☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

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

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☒	Dry channel, no water (ephemeral)

COMMENTS _____

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

☒	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

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

This is For Ag Ditch "Int"

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

QHEI PERFORMED? ☐ Yes ☐ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: New Albany NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Licking Township/City: Johnstown

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 11/10/22 Quantity: _____

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100% open

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

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

_____

Additional comments/description of pollution impacts: _____

_____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

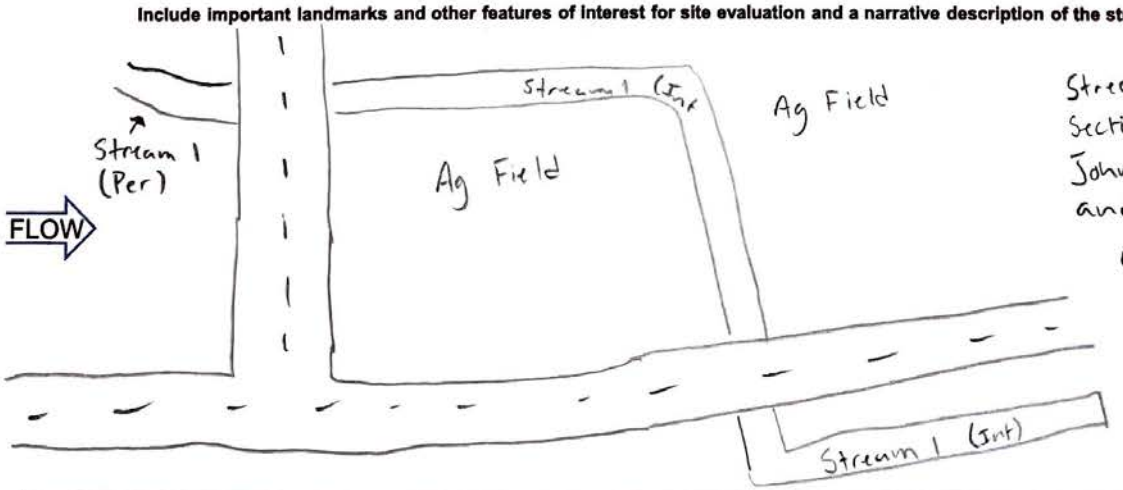
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

_____

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

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



Stream 1 intermittent section is bisected by Johnstown Utica Rd and Tippett Rd.
Ø No flow observed

Headwater Habitat Evaluation Index Field Form

Ohio Environmental Protection Agency

St 2 Recm.

HHEI Score (sum of metrics 1+2+3) 33

SITE NAME/LOCATION Nisource Intel Project

SITE NUMBER 1 RIVER BASIN 05040006 RIVER CODE _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) _____ LAT 40.115514 LONG -82.731462 RIVER MILE _____

DATE 11/10/22 SCORER ID & AV COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

1. SUBSTRATE (Estimate percent of every type present). Check *ONLY* two predominant substrate *TYPE* boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		1	SILT [3 pt]	60
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pts]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		2	CLAY or HARDPAN [0 pt]	40
☒	GRAVEL (2-64 mm) [9 pts]		☐	MUCK [0 pts]	
☒	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40

3

A + B

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

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☒ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS Stream **MAXIMUM POOL DEPTH (centimeters):** 3½

Pool Depth Max = 30

15

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ **AVERAGE BANKFULL WIDTH (meters)** 4½

Bankfull Width Max=30

15

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R	
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☒	☒	Narrow <5m
☐	☐	None

FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	
☐	☐	Mature Forest, Wetland
☐	☐	Immature Forest, Shrub or Old Field
☒	☐	Residential, Park, New Field
☐	☐	Fenced Pasture
☐	☐	Conservation Tillage
☐	☐	Urban or Industrial
☐	☒	Open Pasture, Row Crop
☐	☐	Mining or Construction

COMMENTS _____

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

- ☒ Stream Flowing
- ☒ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS _____

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

- ☒ None
- ☒ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Jersey NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Licking Township/City: Johnstown

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 11/10/22 Quantity: _____

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100% / 65%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

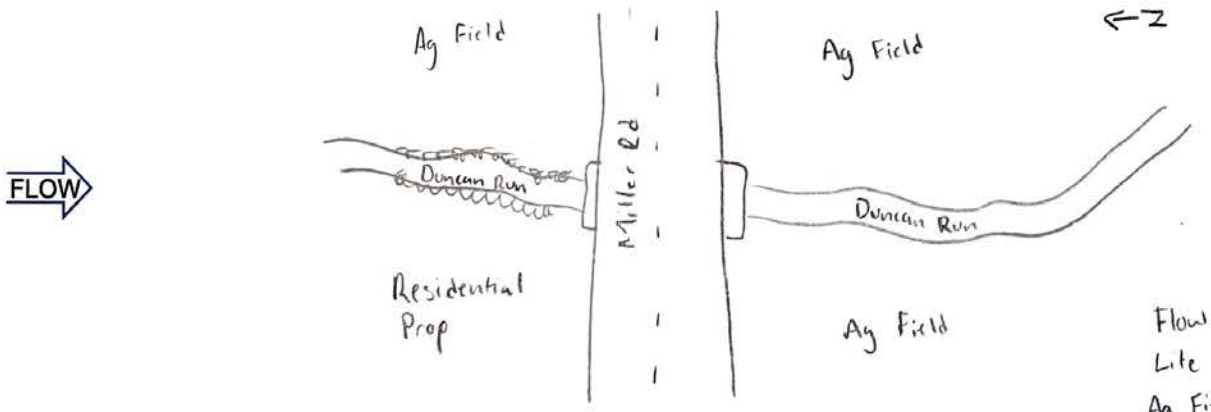
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

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

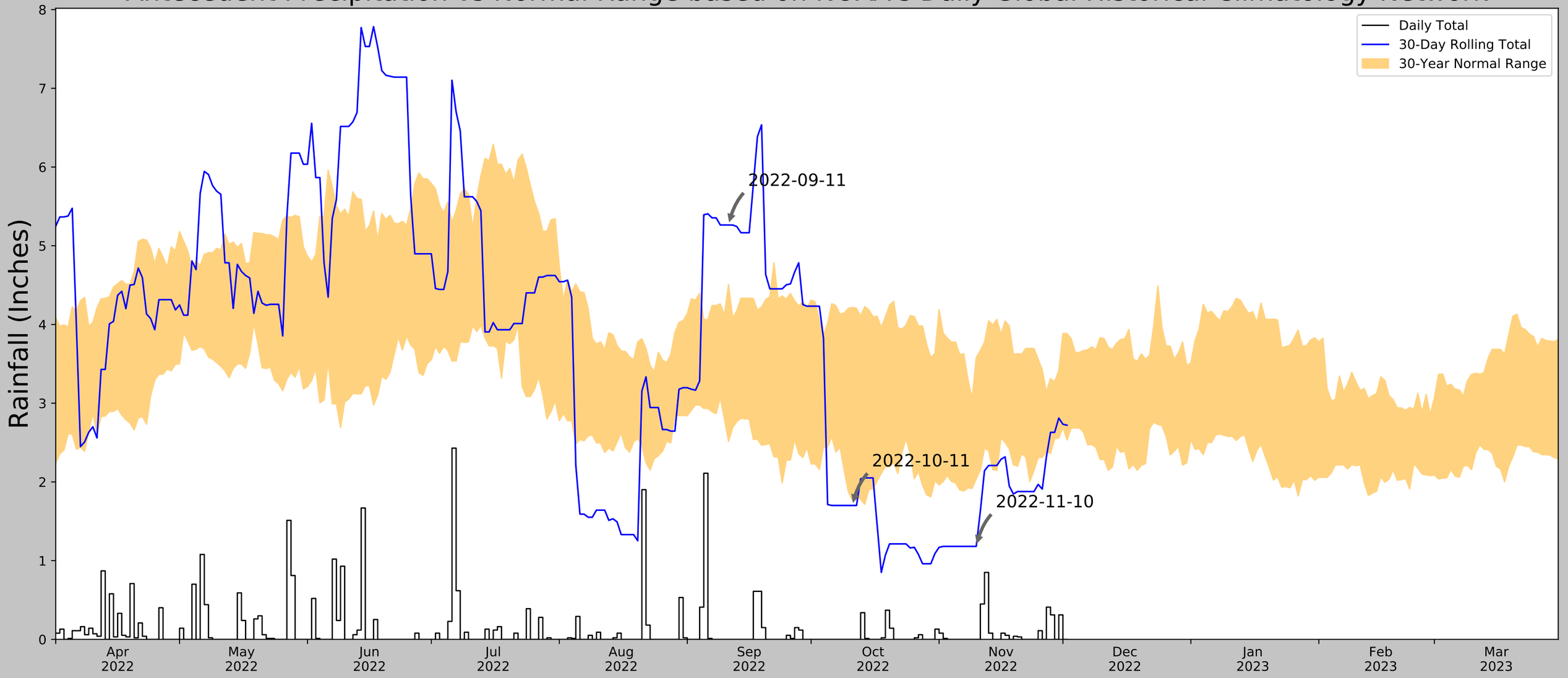
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Flow of stream: N
Lite flow
Ag Field side of stream has 0% cover (100% open)
Other side of stream had roughly 65%

APPENDIX C
USACE ANTECEDENT PRECIPITATION TOOL

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	40.139550, -82.760981
Observation Date	2022-11-10
Elevation (ft)	1122.65
Drought Index (PDSI)	Moderate wetness (2022-10)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-11-10	2.037795	3.578347	1.181102	Dry	1	3	3
2022-10-11	1.766929	4.216142	1.700787	Dry	1	2	2
2022-09-11	2.514961	4.50748	5.26378	Wet	3	1	3
Result							Drier than Normal - 8

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
CENTERBURG 2 SE	40.2914, -82.6547	1205.053	11.896	82.403	6.334	10803	90
NEW ALBANY 4.0 NE	40.1265, -82.7629	1118.11	0.907	4.54	0.412	4	0
SUNBURY 5.7 ESE	40.2001, -82.7732	1089.895	4.233	32.755	2.044	79	0
ALEXANDRIA 2.1 NNW	40.1182, -82.6265	1080.053	7.256	42.597	3.574	268	0
NEW ALBANY 2.8 SSE	40.0403, -82.798	1032.152	7.131	90.498	3.854	33	0
UTICA 4 WSW	40.2061, -82.52	1134.843	13.528	12.193	6.252	95	0
COLUMBUS-HAP CREMEAN WP	40.0603, -82.8942	831.037	8.919	291.613	6.615	61	0
WESTERVILLE	40.1267, -82.9442	801.837	9.719	320.813	7.492	10	0

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

APPENDIX D
PHOTOGRAPHS

Colliers
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Photograph #1: View of Perennial Stream 1.

Photograph #2: View of Intermittent Stream 1.

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Photograph #3: View of PFO Wetland 2.

Photograph #4: View of Perennial Stream 2.

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